THE IRON AGE

THURSDAY, SEPTEMBER 11, 1890.

The Sweeney Wire Nail Machine.

The wire nail machine which we illustrate this week is the invention of Col. A. J. Sweeney, of the firm of A. J. Sweeney & Son, of Wheeling, W. Va. The objects sought in designing the machine were simplicity of construction, ease of operation, strength, interchangeability of parts, cheapness of annual maintenance and a minimum motion of the reciprocating parts, allowing an increased speed and consequent larger output of nails. A machine now in operation at the shops of the firm, with a range of from 1 to 2 inch nails, shows an output of over 500 nails per minute—529 by actual count. The space occupied is less than any other nail machine requires. The points of the invention, stated in general terms, consist, 1, in an arrangement of the levers which work the gripping, pointing and severing dies and the lever which operates the heading die, so that they are all worked by a single cam; and this includes an arrangement whereby the gripping and pointing dies are operated by the sides of the cam, while the header is operated by the periphery. It also includes an arrangement of the parts, by means of which the strains of dies in opposite directions are made to oppose each other and are thrown wholly on the pivoting bolt. The levers are so pivoted and the construction and arrangement of the gripping dies and the pointing and severing dies is so made that the completion of their forward movement shall bring their opposing faces into the same plane with the axis of the pin on which the levers are pivoted which operate the dies. The upper end of the pointing and gripping levers in connection with the dies, and their relative arrangement, allows of their being shifted in position within the boxes formed in the upper ends of the levers, the adjustment of the dies for longer or shorter nails being effected by such shifting. The bed-plate has parallel bars cast on it. In them the upper ends of the pointing and gripping levers fit and work These bars, integral with the bed-plate, also serve to resist the thrust of the header. The cutting die is arranged separate from the pointers, and is so formed as to aid in guiding the wire as it is fed into the machine. A special feature of the design is the relative arrangement and construction of a positive feed.

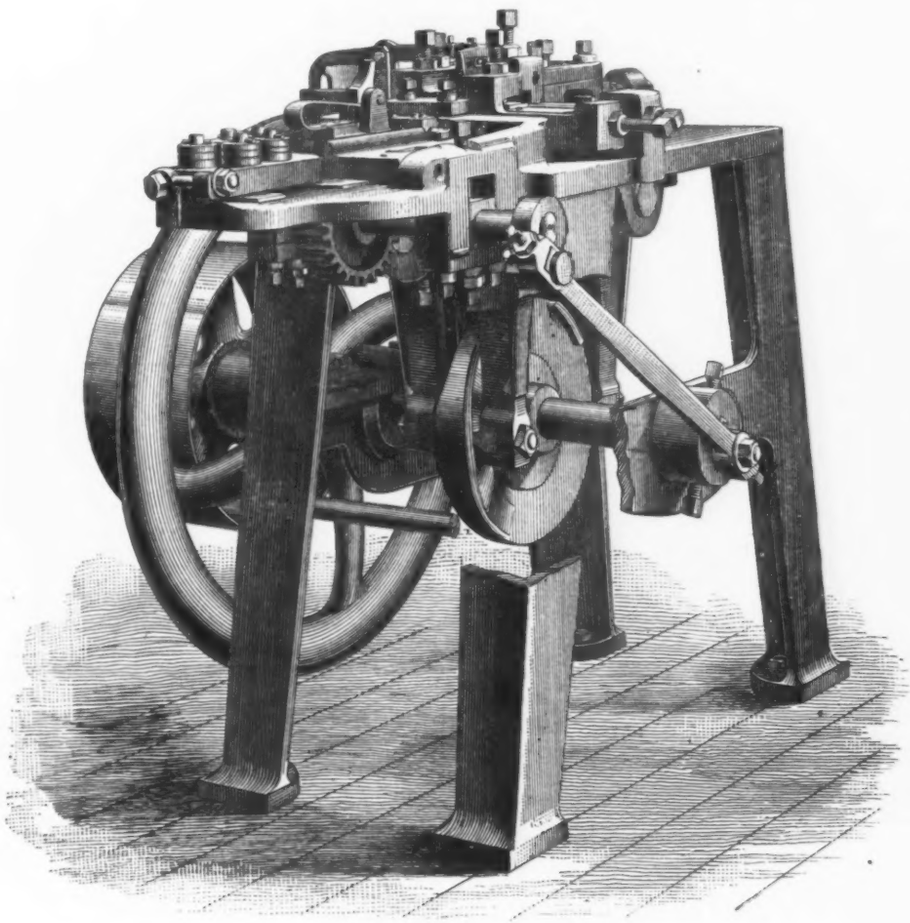


Fig. 1.—*Perspective View.*

THE SWEENEY WIRE NAIL MACHINE.

The machine is illustrated in the accompanying cut and drawings, in which Fig. 1 shows a perspective view of the machine. Fig. 2 shows a central longitudinal section, with parts in elevation. Fig. 3 is a transverse section on line *x x* Fig. 2, showing a part of the machine taken alongside of the gripping dies, with parts in elevation. Fig. 4, a similar view on line *y y* of Fig. 2. Fig. 5 is a detail view showing a removable shoe on the end of the levers which bear upon the side of the cam. Fig. 6 is a detail view of the pointing dies and cutter. Figs. 7 and 8 also illustrate the construction and arrangement of the pointer dies and cutters. The bed plate A rests upon suitable supporting legs, B, and is cast with projections which form the working parts as hereinafter described in connection with those parts. Two of these projections, marked respectively 1 and 2, are on the under side, and are bored out to receive the pivot 3, on which turn the gripping and pointing levers. Of the grippers, one, *a*, Fig. 2, is fixed, and the other, *b*, is movable. The fixed die lies within a box formed by the ribs 4 and 5, cast with the bed plate. It is held securely in this box by other dies and spacing pieces. The fixed die *a* is adjustable by means of a screw 6, Fig. 2. The moving die *b* is held in the box marked 7, 8 and 9, formed on top of the gripping lever *d*. This die is also adjustable by means of a screw, 10.

The gripping lever is made with an offset of the form shown in Figs. 3 and 4, there being a hole through this offset through which passes the pivot 3. The gripping of the die *a* is set in a plane with the center of the pivot. The machine being set with the bed horizontally, this plane is a vertical plane. The movable die is arranged so that its face comes up squarely against the face of the fixed die, and is, when up, in the same plane. The die faces are formed with grooves fitted

to receive the wire. This arrangement of the die faces in the same plane with the axis of the lever, causes the latter to seize and hold the wire exactly in the same horizontal plane in which it is moved in the feed and avoids the tendency to push it up or draw it down, as would be the case if the die faces were out of the plane of the lever pivots. The box of the lever which carries the movable die bears against a rib or abutment, 12, Fig. 2, cast with the bed plate. The lower end of the lever is shown at d', Fig. 3. It extends down upon one side of the cam D and is in range with an interior cam face e on the side of the cam wheel D, Fig. 3, next to the lever end d'.

The levers which carry the pointing and cutting dies are shown at F F′, Figs. 4 and 8. They are of the same general construction as the gripping die lever just described and they turn on the same pivot. They are pivoted side by side, as shown in Fig. 2, the lever F′ being bent to bring it into line with the lever F at the upper and lower ends. The construction and arrangement brings the meeting faces of the dies into the same plane with the axis on which the levers turn, as described heretofore in connection with the gripping dies, and for the same purpose. The lower ends of these levers F F′, straddle the cam wheel D near its periphery and are in line with the cam face on the side marked f.

As the parts are arranged, the motion of the cam wheel D is in the direction of the arrow, and the cam face e is the first to come into operation. It will be understood that the levers are held against the sides of the cam wheel by the leaf springs 13. With the levers as described, the cam face e striking the tail of the lever d brings up the gripping die against the wire and grips it firmly. Next to follow is the action of the header. The heading die is held in a mandrel, it being adjusted longitudinally therein by means of a wedge, 14, in a transverse slot, the wedge being held by a set screw, 15, all as shown in Figs. 2 and 3. The mandrel reciprocates in a projection, 16, of the bed plate. It is connected by links to the upper end of a lever, G, Fig. 3, pivoted on a transverse pin, 17, in ears formed on the under side of the bed plate. The lower end of the lever G is pressed constantly against the periphery of the cam wheel D by a leaf spring 18. The high part of the periphery of the cam wheel is shown at 19. This is arranged to strike the lever G, next in order and immediately after the cam face e has moved the lever d. This brings the heading die m against the end of the wire, while it is firmly gripped, and upsets the end, forming the head of the nail. Next in order the cam face f strikes the levers F F′, and this operates to point the nail and sever it from the wire.

The mechanism for feeding the wire consist of a disk or wheel placed adjust-

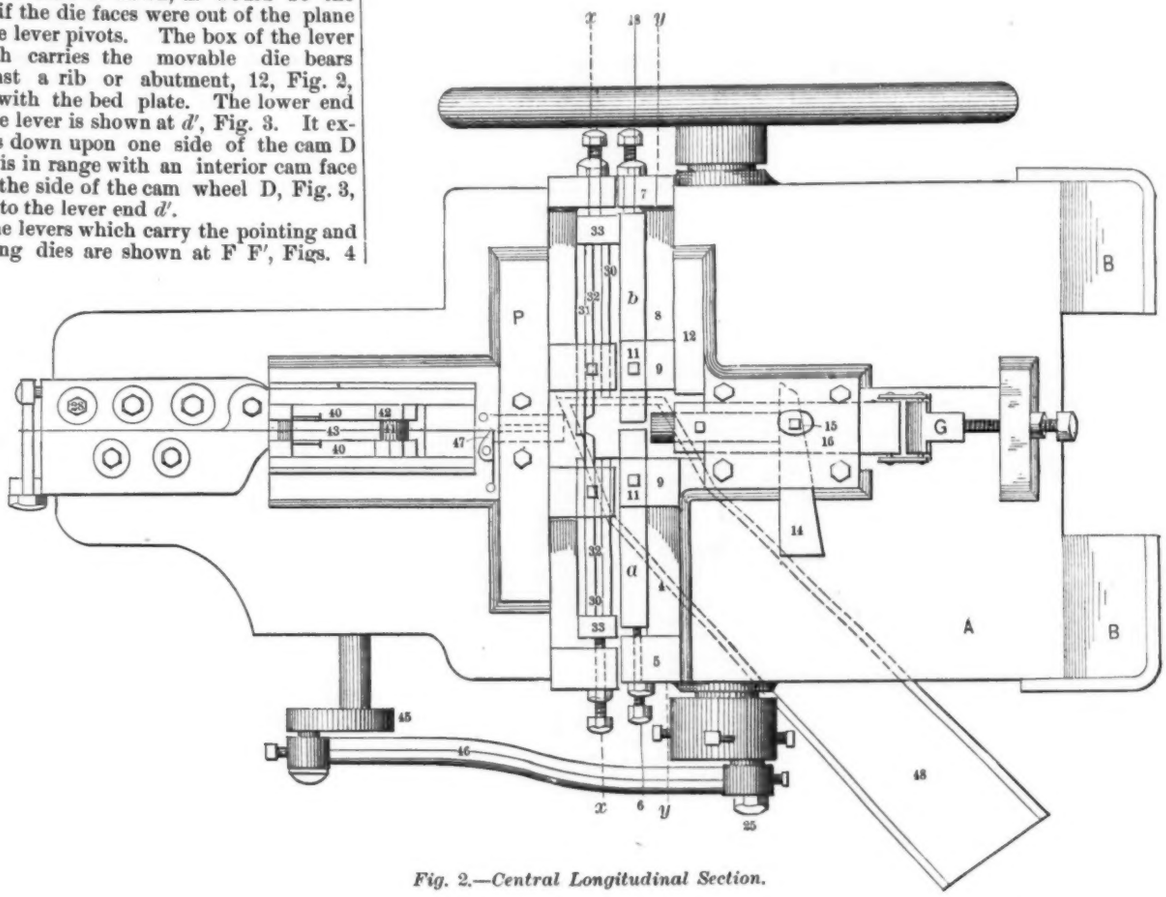


Fig. 2.—Central Longitudinal Section.

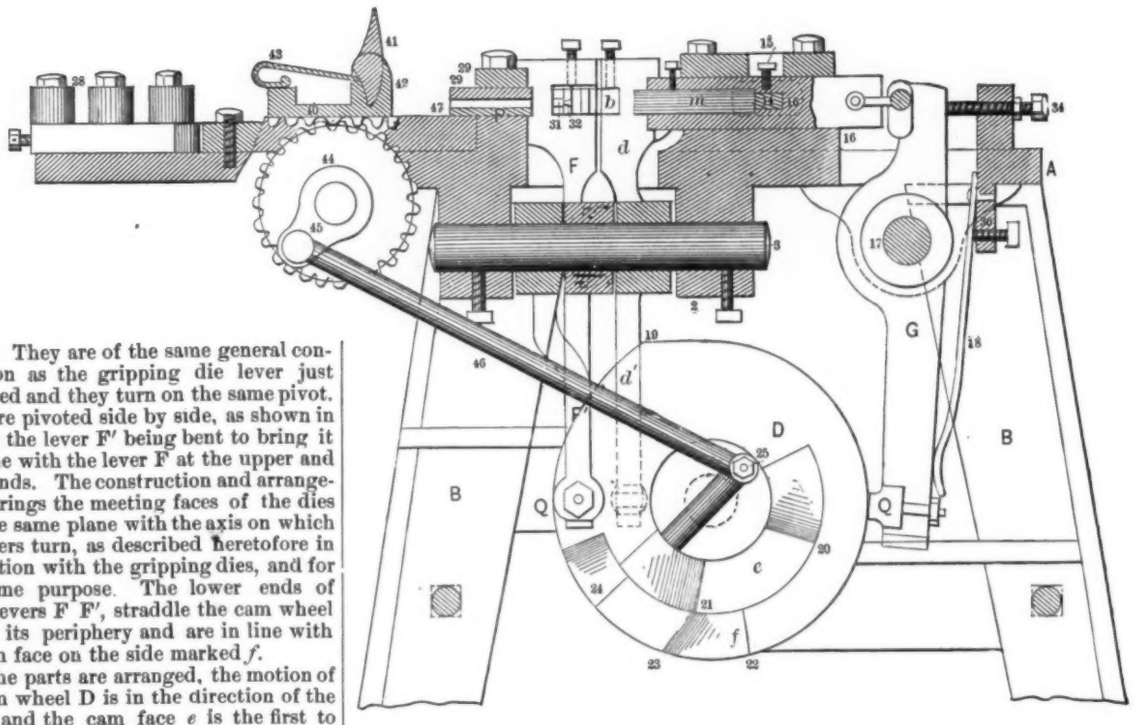


Fig. 3.—Transverse Section on Line x x of Fig. 2.

ably on the end of the driving shaft and having a wrist pin, 25, set in a groove in its face, regulated and held by set screws, as shown. A rod or pitman, 46, and a rocking arm, 45, rotates a shaft and cog wheel, or segment of one, which engages into a slide, 40, which carries a pawl, 41, held down by a spring, 43. The end of between the feed slide, 40, and the pawl, 41; thence through a tube, 29, set in a rib, P, cast upon the bed plate. This rib is located close to the box of the pointer levers and affords a strong abutment, fitted to bear the thrust of the header. This thrust is transmitted to the abutment, P, through the dies and spacing pieces, 30, interdie, and of the same thickness. The faces of the pointer dies are illustrated in Fig. 8. In the center of the plane face of the die is a V-shaped transverse rib, having an angular groove tapering nearly to a point. The groove is V-shaped in cross section, and it leaves straight converging edges, which nearly touch

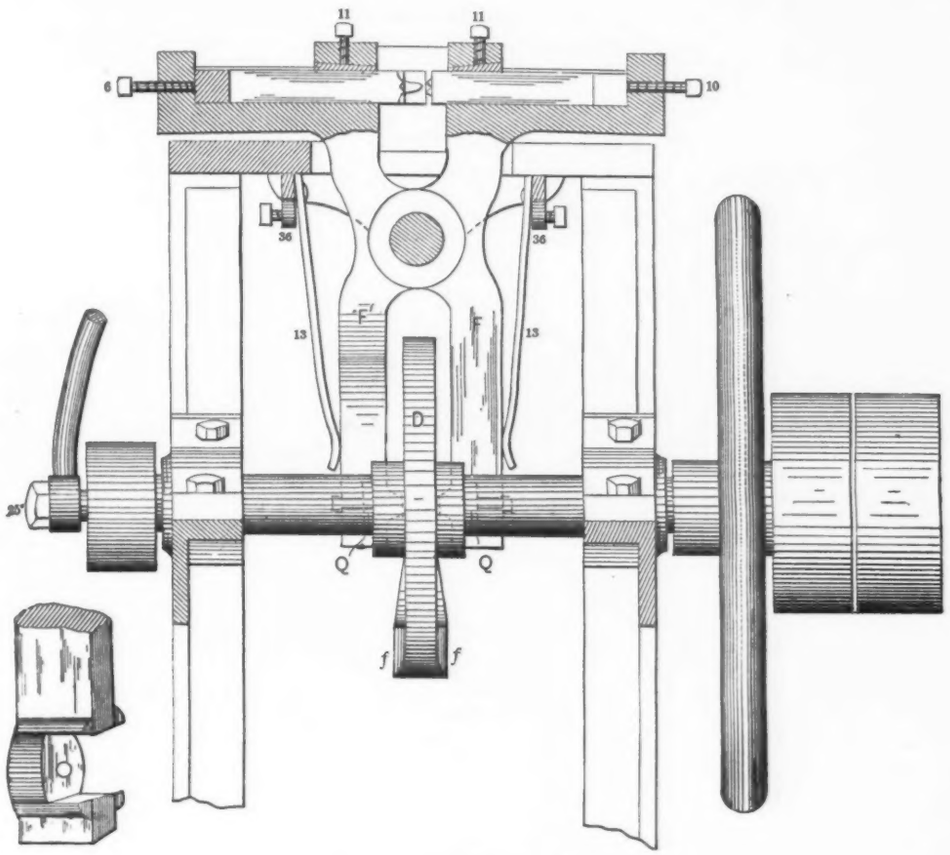


Fig. 4.—Transverse Section on Line y y of Fig 2.

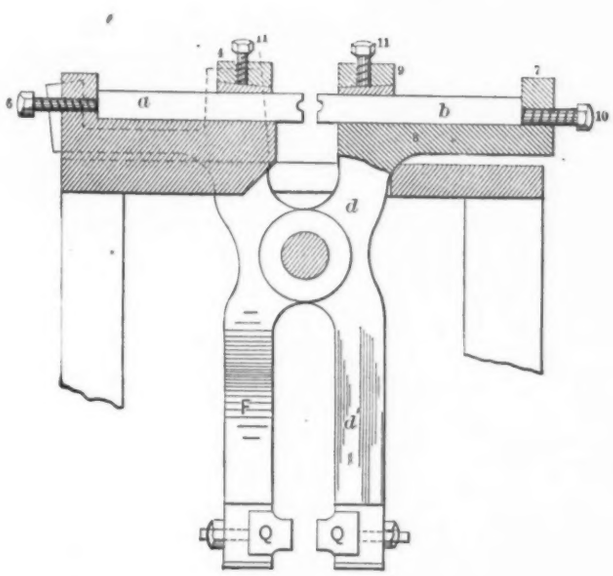


Fig. 5.

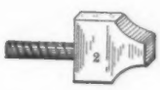


Fig. 6.

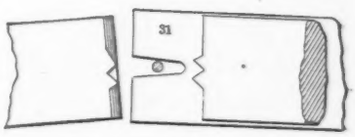


Fig. 7.

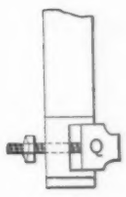


Fig. 10.

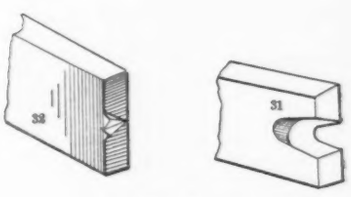


Fig. 8.

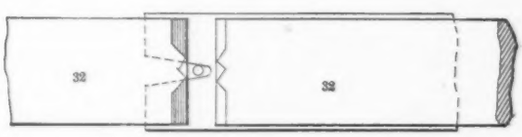


Fig. 9.

Figs. 5 to 10.—Details.

the table next the feed is provided with straightening pulleys, 28. Three of them are set on pins in a rib cast with the bedplate; the two opposite these are on a pivoted piece, adapted to be swung aside to admit the wire and held close by a link. The wire passes from the coil between these straightening pulleys, thence posed between the dies and through the walls of the boxes on the pointer levers. The cutting die, 31, in the arrangement shown in Fig. 2, lies next to the wall of its box, and next in order is placed the pair of pointer dies, 32, a piece of the same thickness as the cutter die being laid in the opposite box, opposite to the cutter each other at the converging ends, so that when the two dies come together the edges coincide and form a cavity substantially rectangular in cross section, the larger end being about the size of the wire and the smaller reduced to a point. When these dies, therefore, come together upon the wire they point the nail and

leave a very small filament of metal remaining. The cutter 31, which, being in the same box, moves with the pointer dies, but is arranged to shut slightly past the closed pointers, and severs the nail entirely from the wire. The relative arrangement of the pointers and cutter is shown in Figs. 7 and 9. The deep notch in the cutting die is flared toward the tube 29, so that it aids in directing the end of the wire after the nail is severed in the next advance of the wire to the dies.

Behind the cutting die and pointing dies and spacing pieces is a block, 33, against which the set screw bears, so that all are moved and held together when adjusted for the work, and all are held down by set screws that bear upon the plates resting directly on the dies and spacing pieces. The different operations on the wire, to form the nail and sever it, are necessarily very precise and in rapid succession; the movements of the respective dies are required to be in like precise order and of different continuance. These operations, therefore, require exact construction and arrangement of the parts of the cam, which are shown in Fig. 3. The cam, moving in the direction of the arrow, supposing the machine to be in the act of feeding the wire, begins very gradually as the wrist pin leaves the dead point; it is represented in the figure as advancing from that point and near its fullest movement of throw. When it reaches the second dead point, the forward rise of the cam face *e*, being just behind the wrist pin, immediately strikes the gripping lever. The high part of the cam face *e* is from 20 to 21, and during the movement of this high part over the tail of the lever *d* the grip holds. But the high part of the periphery, 19, is about the center of the high part of *e* and therefore strikes the heading lever while the grip holds. At the point 21 the grip begins gradually to relax, and almost instantaneously the high parts of the cam face *f* begin to act on the pointer levers; only one of these is shown in Fig. 3, the other being exactly opposite. They begin gradually to act at the point 22 and the forward end of the high part begins at 23, following quickly the end of the high part *e*. The high part of the cam face *f* extends from 23 to 24, a small part of the whole face, but long enough for the necessary work of the pointer dies and cutter die. The rear slope of the came face *e* terminates before the rear slope of the cam face *f*, and thus the gripping dies are wholly retracted before the complete retraction of the pointers.

As soon as the wire is advanced its forward end is seized by the grippers and held while the header upsets the end against the grippers. Next follows the action of the pointers, and as they begin to act on the wire the grippers begin to relax, and they recede to their rearmost position just before the pointers recede, so that when the pointers let go their hold the nail drops, having been fully severed by the cutting die. To secure absolute certainty in dropping the nail out of the dies a clearer of ordinary form may be attached. The movements of the parts are all gradual and positive in their operations upon the wire to form the nail. There are no blows delivered by springs, and consequently less noise, and force is more easily adjusted and controlled.

Apart from the dies the principal wear is upon the cam wheel and the ends of the levers bearing thereon. The cam wheel is of cast iron, preferably chilled, and may be easily and cheaply replaced. To save the expense of replacing the levers when the ends are worn, and at the same time render the ends more durable, shoes, O, are provided, which may be made either of hardened or soft metal. They are fitted to the ends of the levers to which they are held removably, as shown in Fig. 6. The spring are attached to lugs, 36, cast on the under side of the bed plate. The upper ends of the springs are riveted or bolted thereto, and the springs are adjusted by screws set in the lugs and bearing on the springs below the rivets or bolts.

A shute, 48, is located underneath the dies and extends laterally to receive the nails as they drop and discharge them outside of the machine. To make longer or shorter nails it is only necessary to shift the spacing pieces from one side of the pointer dies to the other.

The motion of the reciprocating parts of the machine, both of the dies and the header, is very short, and the machine may therefore be run at a high rate of speed.

To run the machine in an opposite direction, it is only necessary to reverse the cam wheel upon the shaft and turn the shaft in the same direction indicated by the arrow on the cam wheel.

Brown, Bonnell & Co.

The famous litigation over the property of Brown, Bonnell & Co., whose rolling mills at Youngstown were recently sold at receiver's sale, has been brought to a final and definite settlement, by a decision just rendered by Judge Ricks. The purchasers of the plant were William McCreery, Henry Tod and C. C. Baldwin, and the price paid was $700,000, which is more than two-thirds the appraised value. On August 22 nine exceptions to the sale were filed, as was also a motion to confirm the sale. Judge Ricks, after hearing lengthy arguments of the different exceptions, decided that they were unwarranted, and that to turn the business over to the State courts now would be an idle, expensive and useless proceeding, without precedent or reason. The exceptions were therefore overruled, and a decree confirming the sale ordered to issue. In conclusion, Judge Ricks spoke as follows: "In thus finally disposing of this protracted litigation, it seems proper and due to my predecessor and his associates, the circuit judges, who have aided him in the management of this vast property, to direct attention to the satisfactory results that have followed its seizure and operation. The property has not only been preserved intact for the protection of creditors, but by the wise management of the receiver and his principal agents and officers, a fund of over $700,000 has been accumulated, so that, after long and expensive proceedings, it seems assured that every creditor will be paid the principal sum due him in full. But for the appointment of a receiver the property would have been dissipated and largely wasted on hostile litigation, to the prejudice of all concerned. It is not often that such beneficial results follow such long litigation, and it is a proper subject of congratulation to all concerned."

The Interstate Commerce Commission on Friday decided the case of Rice, Robinson & Winthrop against the Western New York and Pennsylvania Railroad Company and others. The decision is favorable to complainants, who allege that the roads discriminated against Buffalo and in favor of South Amboy, N. J., in rates, charging more for the short than for the long haul, and that by making a more favorable charge to shippers in tanks than to shippers in barrels unjust discrimination was made in favor of the Standard Oil Company. The Commission, in their decision, hold that consolidated roads cannot make rates for one division that give profitable markets to a portion of their patrons and higher rates for another division that are destructive to the business of other patrons who are competitors in the same business. The Commission also hold that a carrier that employs different methods for the transportation of petroleum—for example, tank cars, in which the oil is carried in barrels—is not relieved from their duty in respect to equality of rates by the difference in the mode of carriage.

A Hay Palace.

Among the unique exhibition buildings in the West this fall will be a hay palace at Momence, Ill. It will be opened to the public on October 1. The primary object of the exposition is to make a display of the varied products and resources of Eastern Illinois and Western Indiana, in the hope of attracting investments and immigration from the older Eastern States. The exhibits will include the products of the farms, factories, forests, mines, quarries, and of the arts, domestic skill, and the accomplishments of the people of the district in music, oratory and manual training. Among the special features will be an immense aquarium containing every species of fish that can be captured from the Kankakee and Wabash Rivers, and a collection of mound builders' and Indian relics obtained from the Indian mounds in the Kankakee Valley above Momence. An attempt will also be made to exhibit the geology, botany and ornithology of the district. There will be the usual machinery hall with power, special effort being made to collect the latest improvements in the lines of haying machinery and tools, and machinery for ditching, making and laying tile, road machinery, &c.

The building is 206 feet in length and 166 feet wide in the center. The central, or main hall, is a perfect circle 103 feet in diameter, flanked to the north, south and west by wings 50 feet wide. A circular gallery, 18 feet wide, sweeps entirely around the main hall, from which there is an unobstructed view of the vaulted roof and to the top of the immense central dome 87 feet from the ground. This dome, with a circumference of 80 feet, is covered with a thatch of bright straw. The frame work of the big towers on the corners of the wings is also covered with thatch made from various species of marsh grass.

The walls of the building are built entirely of baled hay, with just enough baled straw used in trimming to make a pleasing contrast of shading and color. Battlements of baled hay are carried over the roof, thus giving the structure something of the appearance of a feudal castle. The somber color of the hay and the quaint little windows, looking more like port holes than modern windows, add to this appearance. These windows are only intended for ventilation, light for the interior being supplied by hundreds of electric lights, which dot the trusses supporting the immense roof and dome and cluster along the inner circle of the gallery. It is intended to cover every post, pillar and truss of the interior with decorations of grasses, evergreens, corn, wild verdure, flowers, &c.

A Long Blast.—A writer in *Stahl und Eisen* claims for No. 3 Von der Heydt furnace, of the Borbeck Works, the best record for a long blast and maximum output on one lining. The furnace was blown in on March 31, 1873, and blew out on July 15, 1890, making its campaign 17 years three and one-half months. During that time it produced 355,236 metric tons of iron. The furnace is 15.06 meters high, with 4.865 meters bosh, and toward the end of the blast averaged 80 tons daily. Until a year ago, the blast was heated by iron stoves. Since then two Cowper stoves have been in operation.

PHILADELPHIA NOTES.

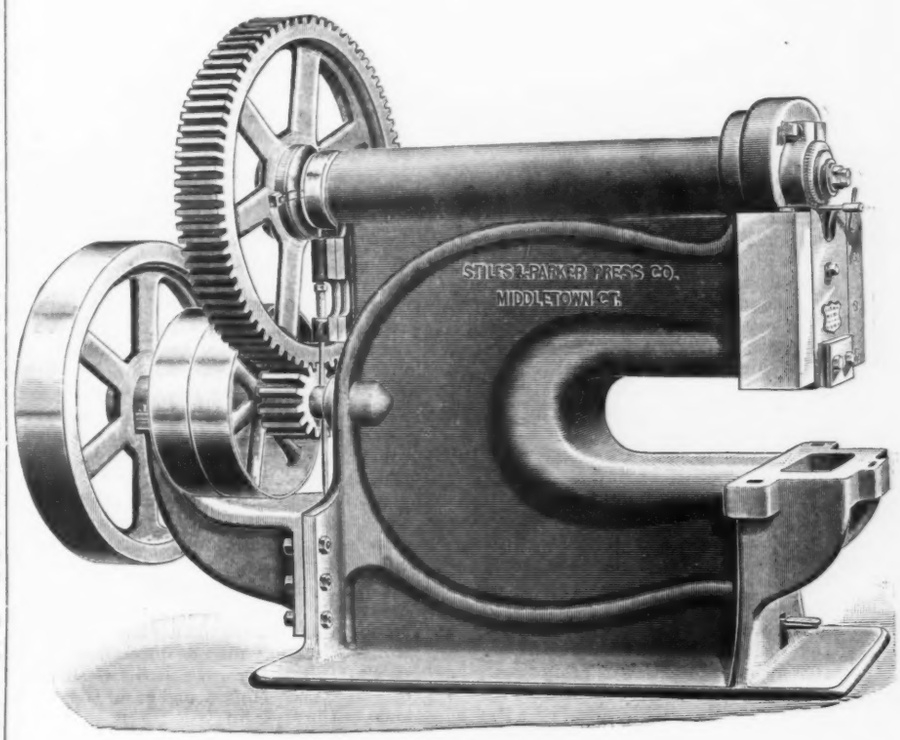
The extensive shafting and pulley works of Geo. V. Cresson, at Eighteenth street and Allegheny avenue, Philadelphia, which are said to be the largest and most complete of any in the world, are now being run to their fullest capacity, although it is less than two years since they were completed. The view upon entering the main building is very striking—503 feet in length without a single pillar. They have recently completed a large order for the Union Pacific Railway Company, at Omaha, Neb.; another for the Botany Worsted Mills, at Passaic, N. J., and one for the J. P. Houck Tanning Company, at Harrisburg, Pa. They are now working on one of the largest orders for shafting and pulleys that was ever given out in the United States—viz: for the Newport News Ship Building and Dry Dock Company, at Newport News, Va. The Crescent Watch Case Company, at Newark, N. J., has also recently placed a large order, which with other important work, assures employment to the fullest capacity of the works for some time to come.

The Link Belt Engineering Company, whose works at Nicetown are run in conjunction with the plants at Chicago, Ill., and Minneapolis, Minn., though only in operation here a few years, have been obliged already to twice enlarge the local works. The first enlargement was the lengthening of the main building 62 feet, making it 412 feet long. The second, which is now under way, is the construction of a large iron addition, which, when completed, will give the plant an L shape. This addition is on the east side of the present building, near the Reading Railroad front. It will be 180 feet in length and 70 feet in width, and will have an elevation of 25 feet to the eaves and 45 feet to the ridge of the gabled roof. The building will be entirely of iron, is well under way, and is expected to be finished about the middle of October. When completed about 50 additional hands will be given employment. This will swell the working force up to about two hundred. The company have recently expended a large sum of money in filling up and grading their property, which covers a plot of ground containing about five acres. The company contemplate erecting another large addition to the plant in the near future. It will probably cover most of the ground on the west side of the present main building. Last week a large conveying machine was shipped by the company to a large sugar plantation in Brazil.

The already great works of the Midvale Steel Company, of which Charles J. Harrah, is president, at Nicetown, Philadelphia, are to be enlarged, and this step, it is said, is one preliminary to a still further enlargement in the near future. The company have fenced in the ground occupied by the works and levelled off the upper vacant end, preparatory to the erection of a large additional building for casting steel. This building is to be 285 feet long, 135 feet wide and one story high, being 25 feet to the eaves of the gable roof. The massive roof will be supported by 58 double truss iron girders, each of which will rest upon stone foundations. There will be 12 other piers running to the roof, upon which will be secured the tramways for large traveling cranes. The building will be of iron. The roof and outer walls will be sheathed with galvanized corrugated sheet iron. The works are now employing between 800 and 900 men, which will be increased to 1100 or 1200, as soon as this building is ready to accommodate them.

The Main Belting Company, Philadelphia and Chicago, report that the demand this year has been very large for the Leviathan belting, of which they are the sole manufacturers. Among recent orders may be noted one for a special belt 150 feet in length by 48 inches in breadth and 10 ply thickness. This is said to be an unusually large size. The company make a special point in always carrying a heavy stock of belting, in regular sizes up to 24 inches, at the Chicago house, thus enabling them to supply the Western trade promptly.

The machine tool works of Israel H. Johnson, Jr., & Co., are being run to their fullest capacity. Among their recent orders may be mentioned lathes for Macintosh, Hemphill & Co., of Pittsburgh, one 36 swing by 47 feet long, with two sets of heads and saddles; one 48 swing by 43 feet bed, also with two sets of heads and saddles; 13 lathes of various sizes (from 15 to 48 inch swing) for the Oliver Iron and Steel Company, and one 36 x 39 for the Pittsburgh Forge and Iron Company. They are also building a large gun bore lathe for the Midvale Steel Company, beside having on hand a large assortment of miscellaneous work.



THE No. 5½ STILES PRESS.

The Stiles Deep Throat Power Press.

Stiles & Parker, of Middletown, Conn., have just brought out a No. 5½ press, for work which requires holes to be punched at large distances from the edge of the sheet. It is designed for the use of boiler makers, bridge builders, railroad shops, tank makers, saw manufacturers, &c. Being provided with a very long slide, strongly and accurately gibbed, it can also be used for cutting out irregular shapes, operating perforating dies and other tools requiring greater accuracy of the working parts than is usually provided in presses of this class. The Stiles eccentric adjustment and automatic stop also represent features of convenience and accuracy. By means of the eccentric adjustment, the punches or shears attached to the slide can be quickly adjusted to the position best adapted for the work, thus obviating the need of packing, and always keeping the tools in the most advantageous condition, independent of wear. The pressure, in this adjustment, is always taken on solid metal, instead of falling on screw threads, as in other adjustments. It is quickly and accurately made by loosening one bolt and turning a pinion wrench to the needed position. The automatic stop is so arranged that, on pressure being applied to the foot treadle and removed after starting the machine, it causes the shaft to make one complete revolution, stopping it automatically in the position adapted for the introduction of the metal to be punched or sheared. If the foot is kept on the treadle the shaft and slide operate continuously. The principal dimensions of this press are as follows: Weight, about 12,000 pounds; size of opening in bed, 8 x 8 inches; distance back from center of slide, 25½ inches; distance from bed to bottom of slide when slide is up, 10¼ inches; motion of slide, 1½ inches; shaft diameter, 5⅝ inches; the proportion of gearing, 1 to 7; weight of fly wheel, 900 pounds. This press is also frequently furnished with sliding table and automatic feed, adapting it for manufacturing perforated sheet metal.

The Seguranca, the newest addition to the fleet of the United States and Brazil Steamship line, arrived here on Friday. She is one of the finest American built steamships that have ever come to this port. She was built at Chester, Pa., and was launched on May 17. The Seguranca is made of steel and has a displacement of 5895 tons, and a capacity for a cargo of 3890 tons. She is 336 feet long, 45 feet beam and 36 feet deep; has triple expansion engines from 2800 to 3000 horse-power, and twin screws, which are expected to send her through the water at the rate of 17 knots an hour. The Unites and Brazil line are building another fine steamer, the Vigilancia, which will be launched in a few months.

Savannah's trade last year increased $25,000,000, the total being $133,800,000. She is now the second cotton port in America.

Modern Blast Furnace Construction.—I.

JAS. L. WHITE, PITTSBURGH, PA.

Thorough adaptability to purpose, economy of construction, durability and ease of repair, are the chief considerations in the construction of a blast furnace, and these are influenced to a very great extent by the care taken in the location and design of the plant. Before actually locating a furnace plant, the ground should be carefully looked over to determine its suitability—first, for bringing to the furnace the large amount of materials for manufacture surely and with no delay; second, for the disposal of the cinder or slag; third, for the water supply, and lastly, for the foundations necessary to support the heavy weights in use. The care given to a topographical survey, with various cross sections, location and grade of railroads, probability of overflow from contiguous streams, and other incidentals, will never be regretted. The survey should include a few testings with a long steel rod to give an idea of the foundations.

Properly taken, such care will do more to secure economy of construction and durability of plant than anything else. Many locations of furnaces now in use have demonstrated their unfitness to the economical manufacture of pig iron, and no skill or ability in the management or excellence of construction and machinery will counteract, to any great extent, mistakes made at this stage of the undertaking. The proper district for the location of a blast furnace need not be discussed here, the construction of the plant after the district has been determined being the aims of this paper.

Too little ground has usually been taken for the location of furnace plants hitherto, the older types of furnaces, making small outputs of pig, were expected to run for a long series of years without exhausting the capacity of the dumping ground for the slag. But the modern method of fast driving has increased the output of a furnace of a given size, in some cases four times, not only of iron but also of slag, and this must be disposed of economically and rapidly. In cramped situations this is a serious matter. Situations upon the shore of a sea or lake offer the best solution of this difficulty, perhaps, and next to these, the proximity of a swamp or hollow ground that can be advantageously filled up, is of value. Any location necessitating a long haul for the cinder causes a permanent charge upon the product that should be avoided by all means possible. Again, if too little room is given for the plant, the trestle in the stock house or its substitute will have a steep grade up which it will always be expensive to haul the cars of material, and there is always the liability of dangerous and destructive accident under these circumstances. Sharp curves and steep grades anywhere in the network of railroad tracks about a furnace plant cause continual wear and tear upon the locomotives used. The latter are usually from ideas of economy in wages, run by men incapable of keeping them in repair or operating them economically. These locomotives, also, are not of as good construction and material as those in use on railroads, having to be sold cheaply. Economy here, also, is generally a consid eration with the managment, so that even under the most favorable circumstances of level and straight tracks, there is more wear about them than in a first-class freight or yard locomotive, and as there are seldom any spare ones, the service expected of them is, at best, more or less destructive. Upon them depends primarily the prompt supply of material and the disposal of cinder, the pig iron usually being loaded into cars at such a place and in such a manner as to be immediately taken charge of by the railroad that does the shipping, thus avoiding the use of the locomotives belonging to the furnace.

Having selected a location as free from defects indicated as possible, and with suitable foundation, such as hard rock, in level strata, solid clay, gravel or solid sand not liable to become soaked with water, the definite plan of the plant can be determined, but it should not be before this stage has been reached, and each point discussed, because upon all the foregoing, at least, depends the general adaptability and economy of construction of the plant. In most cases in the design of modern furnace plants a future increase in the size of the plant is either intended or provided for. This always modifies the design to a considerable extent, as, if the location is favorable to such increase, considerable economy in the future can be obtained by providing for this in the first design, mainly on account of the American practice of rapid driving. There are considerable differences between the plans and general construction of modern American blast furnaces and those of Europe and the older class of American plants. The older furnaces were expected to remain in blast for four or six years, making 30 or 40 tons per 24 hours, machinery being small and running slowly, hot blast stoves being few and not greatly heated, and as a consequence, a comparatively small quantity of water being needed for steam raising and tuyere and valve cooling. The present practice of making 100 to over 300 and sometimes over 400 tons of pig iron per 24 hours, means a much less life to the lining of the furnace stack and stoves, and to all the machinery and iron work exposed to hard service and heat, necessitating important changes in design, material and construction, to the end of ultimate economy; and this increase affects enormously the demand for water. Water containing much earthy matter, or liable at any time to become charged with mud or any substances which would be likely to clog pipes of about 1 inch diameter inside, is certain to cause more or less trouble about a furnace, whether in the tuyeres causing deposit from which they may be burned, or other cooling pipes, or in the boilers. Indeed, this one consideration makes all the difference in the style of boiler best suited for the plant, and the number of them necessary to be held in reserve during times of cleaning or repair, furnace conditions meaning in general any continuous service.

The increased demand for good water has a most important bearing on the design of a furnace plant, because if there is any scarcity of water the plant cannot be increased economically, nor can its output be made larger by any improved method of management or change of stock, this last often being at the root of the cause of increase. Many existing furnace plants, otherwise good in every way, cannot increase their output to a great extent, because their water supply is limited and their space for settling and cooling water to be used over again after passing through the cooling pipes is circumscribed. In competition with these a well designed furnace, other conditions being equal, will surely have an advantage hardly to be counted in money value. From 500,000 gallons to 800,000 gallons per 24 hours of cool water are needed at a furnace making 130 tons in the South, with a head of at least 30 feet to insure the rapid flow of water through tuyeres and coolers so as to prevent deposit. This means a large stand pipe or tank from 40 to 100 feet high, and cooling reservoirs in some form, room for which must be provided in the plan, unless there is ample water supply at all times, an infrequent condition at most furnace locations otherwise favorable. I know of a plant of two fine furnaces that has to depend upon a well with pump attached for its whole supply of water, which is a never ending source of expense, this question of water having been almost ignored in the design and location of the plant. Location thus has an important bearing on construction.

In designing a furnace plant many questions arise as to the location of certain of its component parts with regard to that of others. These parts usually consist of the following:

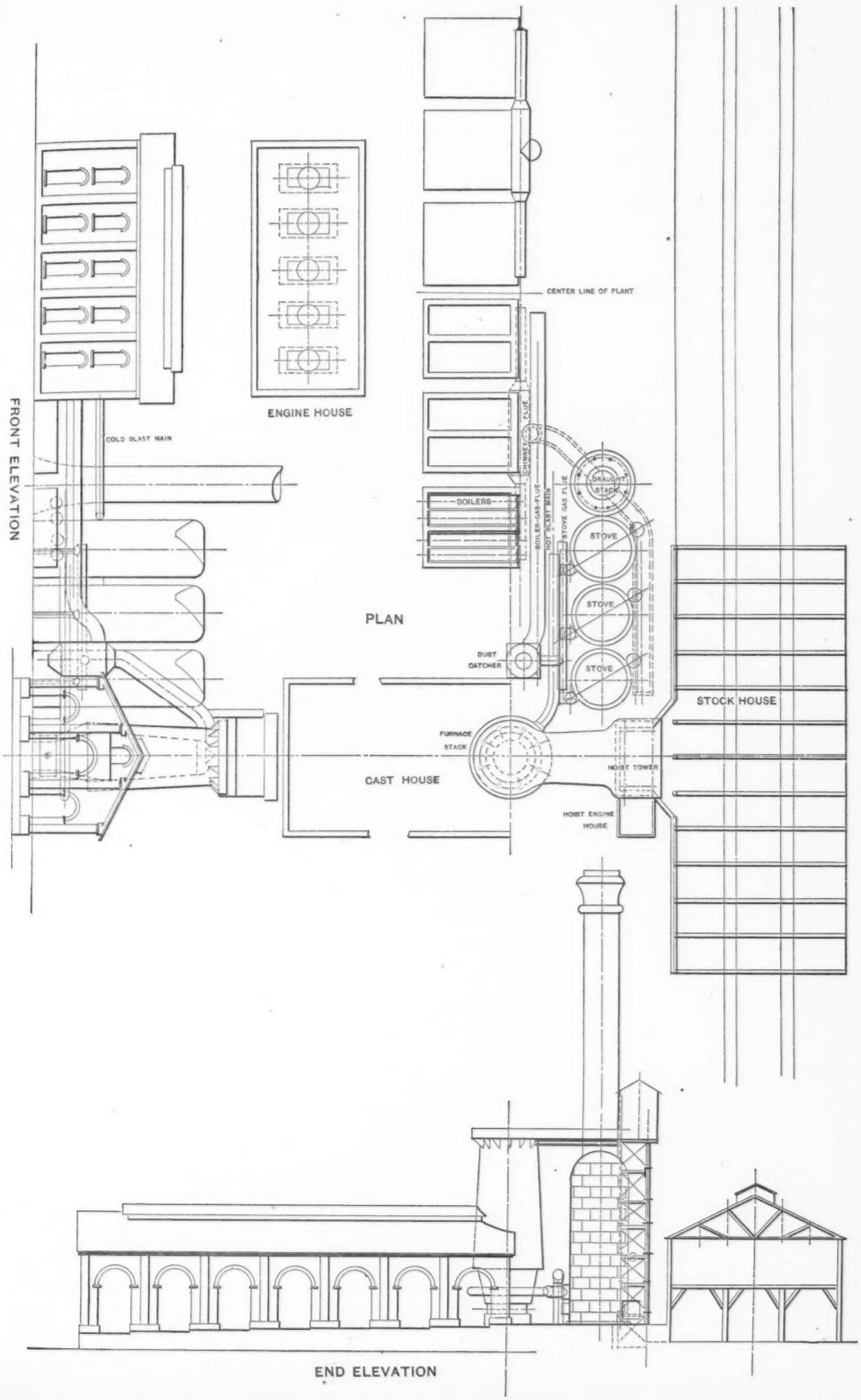
1. The stack or shell of the furnace proper.
2. The downcomer, or pipe conveying the gas to the boilers and hot blast stoves.
3. The boilers to provide steam for running the plant.
4. The blowing engines and house.
5. The hoist for stock.
6. The stock house to assemble, keep dry, sort and weigh materials in.
7. The cast house to protect the pig bed of sand from the weather, and the men who have to work in it from this also.
8. The hot blast stoves.
9. The gas flues leading from the downcomer to the boilers and stoves.
10. The chimney for creating draft and carrying off the burnt gases.
11. The water tank.
12. The pumps and electric light plant, if used.

In addition to these there is often an extensive trestle for bringing cars of stock to a sufficient hight, usually about 21 feet above the stock house floor, and sometimes a considerable reservoir for water large enough to allow heated water to cool for use over again. It is often the case, too, in the South that coke ovens are located close to the furnace, and these—250 to 300 per furnace—with their coal bins, take up considerable space. This is generally an economical practice, because coke breaks up in rehandling, causing loss, and deteriorates from moisture.

Assuming that satisfactory ground has been selected for the erection of a furnace plant, it will, in general, be of such character that there will be a level spot some 200 feet by 100 with a gentle slope in the direction of the cast house to provide for the easy removal of product. As the general level of the furnace plant is usually kept from 5 to 10 feet above the stock house floor level, it will be well to select this portion of the ground with regard to as small an amount of excavation as possible; in many cases this is taken as ground level, and the hearth level, stove level and others raised to suit by subsequent filling.

Let it be supposed that it is decided to locate the stock house at right angles to, and in the rear of, the furnace stack. Take the case of a furnace to be 75 feet high and 17 feet bosh diameter, a very usual proportion and size at present in use in the South, expected to produce with the ordinary class of materials of average quality about 130 tons of pig iron per 24 hours, this being nearly average work of the best plants at present using Southern coke, brown or red fossil ore, and the best limestone, coke and ore being of fair quality. For this furnace the stock house will be 65 feet wide and 150 feet long, or larger, and the center of its length will be placed opposite the center line of hoist tower, if used, furnace stack and cast house. The hoist tower will have two lifts or cages, and be built clear of the stock house, occupying a space about 12 x 23 feet.

The hoist tower is generally located so as to be quite clear of the eaves of the stock house in the rear, and at the same time at not too great a distance from the furnace stack, to avoid a long and heavy "bridge" or platform at the top, between it and the hopper, the old name, "tunnel head," having gone out of use. Sufficien'


FRONT ELEVATION
COLD BLAST MAIN
ENGINE HOUSE
CENTER LINE OF PLANT
CHIMNEY FLUE
BOILER-GAS-FLUE
HOT BLAST MAIN
STOVE GAS FLUE
DRAUGHT STACK
BOILERS
STOVE
STOVE
STOVE
PLAN
DUST CATCHER
STOCK HOUSE
FURNACE STACK
HOIST TOWER
CAST HOUSE
HOIST ENGINE HOUSE
END ELEVATION

distance only is required for the passage of a team and wagon between the hoist tower columns and any stove or dust catcher construction that may be in the rear of the furnace shell, at the same time providing for bustle pipe connection, hot blast main, stove cooling water pipes, &c., according to the construction of the furnace; one thing thus depending upon another from the start. Sometimes the retaining wall at the back of the furnace, and upon which the columns of the stock house stand, is flared toward the hoist tower to permit easier ingress of the stock buggies. The columns of the hoist tower are usually six, provided it is not a brick tower, and require foundations about 24 inches wide, which it is well to have independent of the retaining wall aforesaid, these setting some 2 feet below the stock house floor level. A wall is a better foundation than mere blocks of stone set under the columns. The depth necessary depends, of course, upon the nature of the ground, and if this is rock with nearly level strata, nothing more is needed than excavating to a depth of 2 feet below the level of the stock house floor, and making the rock "true" for the feet of the columns to rest upon. There is little need of holding down bolts for these, as the hoist tower is a sort of cage, usually 21 feet by 10 or 11 feet, and if set level and built "plumb" is not likely to be disturbed by anything less than an earthquake. At any rate, forces tending to overturn it would scarcely be counteracted by the holding down bolts usually employed. The distance from center of hoist tower to center of furnace is regulated as above, but varies from 35 to 50 feet; more than this is not good, because of the extra weight and size of "bridge" or platform necessary to connect hoist and furnace, and the extra travel of stock buggies and "top fillers." Now this distance locates the most important foundation of all, that of the furnace stack, and there should be underneath the hearth level for a 75-foot furnace at least 10 feet of solid material, much more if the ground is at all uncertain. The hearth is the one part of the furnace liable to give out without much sign of its disintegration. Iron will eat down under every part in the most unexpected way at times, as witnessed by the enormous "salamanders," so-called, or masses of iron so often found on the blowing out of a furnace. If this molten iron eats its way down until it strikes water, or even in some cases moisture alone, an explosion of the most serious nature may take place. Honest work is needed here more than anywhere else, and the depth of the foundation must not be limited by considerations of first cost alone. If water appears it is necessary to provide a sure means of carrying it away by gravity, and this alone may mean, in many cases, a total change of level for the plant.

Beyond the foundation for the stack, which will be about 30 feet in diameter, this including, of course, that of the columns as well as the hearth, will be laid out the two parallel walls of the cast house, these being from 50 to 60 feet center to center, and generally "stepped off" to a level at the lower end some 30 to 36 inches below the hearth level, as the slope or grade of the pig bed is about 1 in 50 to insure swift enough travel or flow for the metal during a cast. From 125 to 135 feet are generally enough for length of cast house as now used; where possible a side cast house being favored, some 27 feet wide. It has been the practice at some furnaces to use stone foundations only at the actual piers of the building, but I have seen some very bad settling of the walls of the cast houses where this practice has been followed, especially where the trench was partly filled with loose stone, no mortar being used until the actual rubble wall was begun. A trench 3 feet wide, dug to solid ground, filled for about a foot deep with wide flat stone, well laid in mortar or cement, then a wall of stone up to the stepped levels before mentioned, will make, if honestly done and "good bond" everywhere, a wall foundation suitable for any ordinary brick cast house. These walls should be 30 inches wide rubble, and the brick 18 inches not including pilasters. I have seen several cast houses blown down by wind before their completion, that were of 12 inch or 13 inch brickwork. If an iron building is to be erected instead of brick, foundation bolts, usually ¾-inch, and about 5 feet long, will be built in the wall, and the piers here may be square, with lighter curtain walls between, these being only necessary to confine the sand of the pig bed. The end wall is, of course, the same thing as the side walls. If an iron building is used, the columns of it are usually about 15 feet from center to center. All these foundations should be laid off carefully by a competent transit man, and it should be remembered during the whole excavation and construction that center lines and bench marks must be thoroughly preserved, care taken here saving endless confusion and the endless remeasurement and delay consequent thereon, that I have seen where inexperienced parties were employed to do this work. An uncertainty about a measurement that cannot be easily verified, will often delay a body of workmen very seriously. Centers should be located in plain sight on the walls, as soon as erected, for subsequent use.

(To be continued.)

Specifications for Cast Iron Pipe.

In our issue for July 24 a paper was published on the above subject, which had been read at the February meeting of the American Institute of Mining Engineers, by Thomas W. Yardley, of Chicago. A brief but interesting discussion of this subject now appears in the recently published *Transactions*, which is reproduced below for the benefit of those of our readers who would not otherwise see it:

DISCUSSION.

J. C. Bayles, East Orange, N. J. (communication to the secretary): As a purchaser or user of cast iron pipe or any other kind of pipe, I should not be satisfied with so much of Mr. Yardley's specifications as relates to coating and testing. I should in every case demand that the pipe be tested before it is coated. This is especially true of cast iron. Any form of coating suitable for a pipe which is to be shipped and handled will conceal a multitude of small defects in casting, such as blow holes, sand holes and even small shrinkage cracks. In 1887 the Commissioners of the Health Department of New York City found it necessary in the discharge of their responsibilities relative to the plumbing of new buildings, to amend the plumbing code by the insertion of a clause forbidding the use of dipped, varnished or painted pipes. The reason for this action was the discovery that even a thin coating, of very little value as a protection for the iron, could be made to conceal so many foundry defects, and permitted so much carelessness on the part of makers, that sound pipes were the exception rather than the rule. The value of such a coating in enabling pipes to pass a test is shown in much of the light riveted pipe in the market. I have seen a pipe put together with small cold rivets, headed by pressure, which, after coating with coal tar and asphalt, has shown in the testing machine a capacity to carry without leaks a test pressure much higher than Mr. Yardley prescribes for the strongest and heaviest cast iron pipes he mentions. Before coating the seam would have shown a continuous leak from end to end. The fact that a coated pipe will hold water under a considerable pressure in the testing machine seems to me to speak more for the coating than for the pipe. A cork inserted in the end of a gun-barrel will usually be found in place when the explosion of the charge has burst the barrel. Experiments show that a plug of mud, or even of snow, will do the same. As a manufacturer of pipes, I should be very much pleased to have consumers specify that none should be tested until they had been coated. We should have very few wasted.

For cast iron pipes the test pressures prescribed by Mr. Yardley seem to me much higher than is necessary. The caulked joint is not adapted for high pressures, and cast iron pipe is seldom employed under pressure greater than a lead caulking will stand. It is not unusual in waterworks practice for the lead to blow out of pipe joints at pressures much below those which the pipe will carry safely and comfortably. This is especially true if opportunity is offered for such changes of temperature as will produce a measurable contraction and expansion with the changes of the seasons. The strength of the pipe cannot be greater than the strength of its joints, and with the hub and spigot connection the usefulness of cast iron pipes as a pressure conduit has well defined limitations. In buying it for any purpose for which that kind of pipe is adapted I should be content with half the test pressures prescribed by Mr. Yardley, but should insist on having the test made before the pipe was dipped—and, for that matter, I should require a very much better coating, after testing, than a coal pitch varnish applied at 300° F.

Mr. Yardley (communication to the secretary): Cast iron pipes for water works were first used by the New River Waterworks Company, of London, England, in the year 1810. In 1822 the greatly increased demand for water made it necessary for the company to enlarge the mains. In taking up some of the pipe laid in 1810, many were found rusted so much that they were unfit for future use. This fact coming to the notice of Dr. Angus Smith, he commenced a series of experiments in the preparation of a coating of varnish to be applied to the inner and outer surfaces of pipe to be used for carrying water. His experiments demonstrated the fact that his varnish would not stop the rust when it had once commenced, notwithstanding the rust was covered by the varnish. It was then he adopted the system of coating pipe as soon after cleaning as was practicable, and requiring the pipe to be heated to 300° F. before immersing it in the bath.

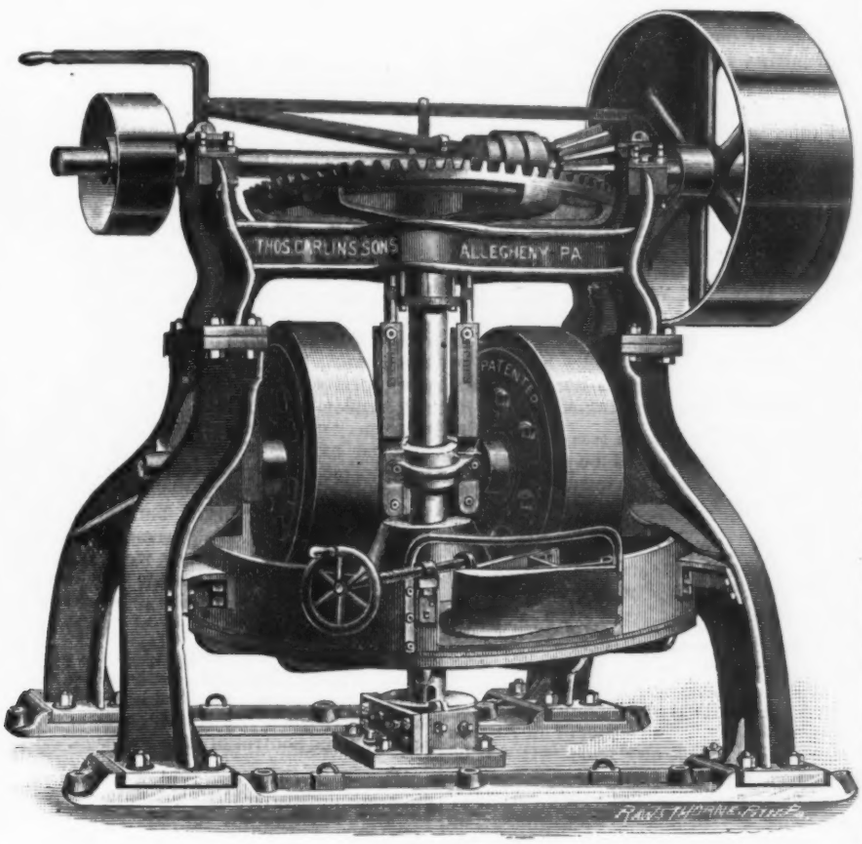
In 1858, some of the pipe being taken from the trenches, in which they had been under ground for 30 years, the varnish was found hard and bright, and the pipes that were broken gave no sign of rust. So satisfactory was this result that the English Government gave a patent therefor to Dr. Angus Smith, and his process has since been used by all makers of cast iron pipe for water works. In making my specifications I have followed what I believe to be the recognized practice of the best hydraulic engineers of this country, and I know I have the endorsement of many.

I was not aware until Mr. Bayles made the statement that tar coating possessed so much strength. If he is correct, would it not be more economical for water works companies to have the iron shell of the pipe much thinner than now used and give the pipe greater thickness of tar? In regard to the hydraulic test, I have the best authority for the pressure required for all pipe above 16 inches diameter.

The increased pressure is specified for the smaller diameters, because the water test is the only one used. It would be very inconvenient, as well as quite expensive, for the makers, if they were required to take test bars for so great a number of pipe as the foundry could turn out daily of the smaller size.

The Carlin Grinding and Mixing Pan.

Thomas Carlin's Sons, of Allegheny, Pa., have recently added a self-discharging attachment to their last grinding and mixing pan, which was presented to the readers of *The Iron Age* some time since. The object of the design is to increase the efficiency of the machine and make it possible to place it in the charge of common labor. It will be observed by inspection of the accommpanying engraving that the discharge attachment is adjustable. The pans are generally used in connection with a dry grinding pan, the material being sent to a storage bin, from which it is drawn in charges as required by the wet pan. The makers produce them in three sizes, 6, 7 and 8 feet in diameter.



THE CARLIN GRINDING AND MIXING PAN.

A somewhat remarkable pair of scales for weighing large parcels of siver bullion have just been completed in England, to the order of the Indian Government, for use in the Bombay mint. The beam of the instrument is a plain forging in wrought iron 11 inches deep in the center and 3½ inches at the springing of the end boxes which carry the knife edges for supporting the pans, the thickness being also tapered from 1¼ inches in the center to ¾ inch at the end of the arms. The total length of the beam between the points of suspension of the pans is 6 feet. The pans are square platforms covered with copper, their weight being about 100 pounds each, and that of the beam 400 pounds. When tested empty the addition of $\frac{1}{16}$ avoirdupois ounce was sufficient to deflect the index through the whole range of the powerful scale, and when loaded with 550 pounds on each scale, under which condition the load on the central knife edge is about 1400 pounds, a deflection of our division is produced by 1 gram, which corresponds approximately to $\frac{1}{250000}$ of the load to be determined, a degree of susceptibility that is very remarkable in a machine of such size and power.

Street Railroads and Rapid Transit.

The latest bulletin issued by the Census Bureau deals with the preliminary statistics concerning rapid transit in cities of more than 50,000 inhabitants. These are specially interesting as measuring in some degree the enterprise of local municipal governments and also municipal growth. In 1880 the total length of the street railway lines in operation was 1689.54 miles, but at the close of 1889 this had increased to 3150.93 miles, with a total length of track, including sidings, of 4871.21 miles. Philadelphia has more length of line than any other city, its total being 283.47 against 200.86 for Boston, 184.78 for Chicago, 177.10 for New York and 164.44 for Brooklyn. But New York leads in length of track, the total being 368.62 against 365.50 for Chicago, 329.47 for Boston, 324.63 for Brooklyn and 324.21 for Philadelphia. The greatest increase in line mileage since 1880 has been in Chicago, where 104.31 miles have been added. Boston comes next with 100.86, and Birmingham, Ala., third, with 76.94. Omaha has the largest percentage of increase, 998.22, having 44.92 miles of track, against 4.50 in 1880. Kansas City comes next with a percentage of 794.42, and Denver third with 793.25. The motive power of the lines in December, 1889, stood as follows: Animal power, 2351.10 miles; electricity, 260.36; cable, 255.87; steam, 221.81. These figures do not represent the present situation very closely, for the changes from horses to electricity have been rapid since the beginning of this year. Of course the total street railway mileage in the United States is far in excess of the figures given for the cities of 50,000 population and over, there being many smaller places with many miles of street car lines, but the report is an interesting one. New York, Brooklyn and Kansas City are the only places having elevated roads. Kansas City appears to be especially enterprising in trying everything that comes along. It has only 10 miles of surface track operated by animal power, 23 miles operated by steam, 5 miles of elevated track operated by steam, 38 miles operated by cable and 7½ miles operated by electric power.

Drawbacks on Exported Merchandise.

The Secretary of the Treasury recently called upon the Attorney General for a construction of Section 3019, Revised Statutes, relating to drawbacks on exportations of articles made of imported materials. He says that under this section experience shows that there are several classes of persons who claim to be entitled to the drawback therein authorized to be paid, namely, the importer of the material who has paid the duties thereon, the manufacturer of the article exported in which such material is incorporated, the owner and shipper of the article to whom the bill of lading has been issued, the holder of the bill of lading to whom the same has been delivered after endorsement in blank, the holder of a copy of the bill of lading upon which the shipper has endorsed authority to receive the drawback and the person who makes the entry for export. The Secretary asks first to which of these classes of persons the Treasury Department should make payment of the drawback; and second, whether by virtue of Section 3019 and Section 3057, the Secretary of the Treasury has authority arbitrarily to determine and by regulations to declare to which of the classes payment of the drawback shall be made. The Attorney General has answered the questions in a long opinion, in which his conclusions are briefly stated as follows:

"It would be a reasonable regulation, therefore, for the Secretary of the Treasury to declare that the shipper—that is the consignor in the bill of lading—in the absence of any evidence to the contrary, will be regarded by the Government as the owner of the goods as the exporter, and as entitled to the drawback. If, before the drawback is paid, a claimant appears as the real owner of the goods in opposition to the person in whose name, as consignor, they are shipped, then it would be the duty of the Collector to decide, on the evidence adduced, the merits of the claim in accordance with the foregoing construction of Section 3019. If such a claim is made subsequent to payment of drawback to the shipper, in accordance with the suggested regulation, the claimant will be estopped by the apparent title to the drawback with which under such regulation he must be held to have clothed the shipper."

The Treasury Department concurred in these conclusions, and customs officers have been instructed to act in accordance therewith.

The business men of Marquette, Mich., have organized a strong Citizens' Association, and propose to go to work in earnest to advance the interests of Marquette. They will endeavor to secure iron and wood working establishments by presenting the advantages of location possessed by Marquette with respect to supplies of raw material.

THE WEEK.

Mr. Davis, of Minnesota, in Congress affirmed that the profits of the manufacturers of binding twine are 40 per cent., or $4,000,000 on the $10,000,000 worth sold to farmers.

British shipowners representing a capital of $500,000,000 in public meeting, at London, resolved upon the federation of the whole of the shipping trade of the British empire, for the purpose of dealing with the labor questions of all parts of the world, and, in particular, resisting the demands and actions of the trades unions and their members. The scheme includes a central council, whose headquarters are fixed in London, and the formation of district committees in the various shipping centers to deal with the cases arising at the outports or abroad.

Of several disastrous failures lately, due to reckless speculation, the most serious is that of the old firm of Sawyer, Wallace & Co., of this city, who have long been prominent operators in all our markets, and had agencies in many European as well as American cities. The liabilities are believed to be near $2,000,000, and the failure, as stated by a member of the firm, is irretrievable. The real cause of the failure, according to common report, is the fact that the firm's resources have been completely exhausted by losses in their foreign option business, conducted through Lucius Willard Sawyer, the son of the senior member of the firm, and for five years the manager of the London branch.

Contracts have been awarded in Baltimore for the Belt Railroad, to include bridges and tunnels for a general transit system, but with special reference to fast time on the Baltimore and Ohio Railroad. The total cost, when ready to operate, will be $5,000,000.

The manufacture of ice machines and appliances for artificial refrigeration are now well established industries. A concern in Cincinnati has supplied 71 companies.

The new naval steel tugs will probably be built simply of commercial steel, without severe tests.

Two new gas wells, opened last week, are sufficient to run half the mills in Pittsburgh.

Cheap sugar stimulates enormous consumption, the increase in the United States since January 1 being 87,000 tons, compared with last year, despite the short fruit crop.

The officers of the printers' union in Canada are sued by the Montreal *Herald* upon charges of criminal conspiracy, the sum of $5000 being claimed in damages from the president of the organization and two others for having conspired together to injure the business of the *Herald* Company, intimidate workmen who had taken the places of the strikers and generally to prevent the business of publishing the paper being carried out. The action is regarded as a test one, and as being calculated to settle once for all the right of workingmen to combine; in fact to secure from the courts an expression of opinion as to the legality of the existence of trades unions. The points at issue have never, it is believed, been raised in a Canadian court before.

The new tax rate in New York City is 1.97, as fixed by the Board of Aldermen, against 1.95 last year. The city obtained no relief from the State Board of Equalization.

The trade of Guatemala during the past year was most satisfactory, but its progress will no doubt be seriously checked by the present political disturbances there. The imports amounted to $7,079,370, being an increase of $2,036,975 over the previous year; while the exports were $9,960,645, against $5,569,210 in 1888. The prime cause of this prosperity was the high price of coffee and the large crop. The value of the coffee exported in 1889 was $9,552,590, against $5,073,215 in 1888. The other exports are of very trifling value, and consisted of hides, sugar, rubber and bananas. In the import trade Great Britain has the largest share.

The New York health authorities insist that Mr. Porter's new census, showing a population of only 1,513,501, is absurd. The sanitary police, in 1888, found that the tenement house population alone numbered 1,093,701. If the last census was correct, it necessarily follows that two years ago the number dwelling outside of tenement houses was 478,760—according to Mr. Porter's computation—which nobody believes. The explanation offered is that people doing business in New York find homes in Brooklyn and New Jersey.

Boston is talking about obtaining a water supply from Lake Winnepesaukee, 75 miles distant, at a cost of nearly $20,000,000.

It is estimated that during the first six months of the present year mortgages on Kansas farm lands amounting in the aggregate to $2,000,000 have been foreclosed. But it is stated also that a large portion of the foreclosures are on unoccupied lands bought up by speculators in the hope of a rise. The boom they expected did not come and they have to be sold out. Such mortgages were not made by farmers, but by speculators.

A section of redwood tree from Tulare County, California, will be exhibited at the World's Fair. It weighs 70,000 pounds and was cut from a forest giant 312 feet in hight, growing at an altitude of 6325 feet, and was severed from the parent tree 28 feet above the stump, at which point the tree measures 60 feet in circumference

With large accumulations of cotton at shipping points in the South, and with prices that promise highly remunerative returns, business is much retarded for lack of ready money. The editor of an Atlanta paper while in this city said: "It will be a glorious crop this year, and will be much larger and finer than last year's. In fact, all crops are in better condition. The farmers are prosperous and business has greatly improved—so much so that a big trade is anticipated this fall. Money to move the crops now would mean thousands of dollars to the South. The price of cotton with us affects the whole market, and it opened this year from ¼ cent to a cent higher than since a few years after the war. A farmer who could command the cash for his cotton at the now ruling price of from 10 to 10½ cents per pound would be a happy man, for 8 cents was the maximum figure heretofore."

The number of railroad employees in this country, in actual service, is estimated by the Interstate Commerce Commission at 704,743, or 459 to every 100 miles of road.

The India cotton crop last year was the largest ever grown. The shipments from all India to Europe, China and other foreign ports, amounted to 1,939,610 bales, against 1,632,000 last season.

A passenger train on the Central Railroad was hurled down an embankment near Albany, in consequence of steel rails being skillfully adjusted in the cattle guard for a diabolical purpose. The Philadelphia *Ledger* well says: "The leaders and agitators engaged in the late strike did not advise and do not countenance such acts of violence; but when they talk figuratively of crippling the road and putting a stop to traffic to gain their ends somebody of weaker mind or worse heart is pretty sure to take their words literally and apply them to train wrecking, just as Guiteau carried to fatal realism the speeches that had been made denouncing Garfield." Attempts to destroy life and property on the line have been of alarming frequency.

The Kinzua Bridge, a famous viaduct on the Erie Railway, is to be torn down. The bridge is the most lofty structure of the kind in North America and consists of twenty towers built of Phœnix iron columns in 30 feet sections, the highest 103 feet. The bridge was designed to support a weight of 266 tons, equal to a load of 3075 pounds per lineal foot of track, but is no longer sufficient for the traffic of the road. The cost was $237,000.

The population of the State of Vermont, as announced by the Census Bureau, is 332,205, a decrease in ten years of 81. The population of the city of Louisville, Ky., is given as 161,005, an increase of 37,247, or 30.10 per cent. in ten years.

Radicals and Socialists have, to a certain extent, obtained control in the labor organizations of Great Britain, but, according to a London correspondent, this mastery will not enable them to do great things. No eight-hour law will be passed by Parliament for the next dozen years, and long before then the trades may all have changed their minds about the importance of having one. The principal result of this triumph of the advanced section threatens to be increased sharpness and asperity in the relations of employers and employed. The costly and dangerous machinery of general strikes will be called into use more freely, and will lead naturally to closer and more extended combinations among capitalists for mutual defense. Enough of this on both sides will produce a reaction, bringing matters back pretty well to where they were before, with the exception that some half dozen labor agitators have become prominent in public life.

It is now definitely settled that the Canadian Pacific Railway Company will secure a permanent entrance into Chicago in October, when the Wabash system will pass into the control of that company.

Mexico is enjoying a high degree of financial prosperity, the receipts of the Federal Treasury for the last fiscal year having amounted to $37,000,000, against $32,000,000 the preceding year.

The Knights' recent dilemma is now succeeded by a golden opportunity. By every consideration they are bound to purge themselves instantly from the stigma of alleged complicity in the dastardly work of train wrecking. Again and again, since the strike at Albany, have attempts been made to destroy passenger trains running at high speed, but they have been frustrated through the vigilance of employees of the company, at least to the extent that no lives have been lost. But the mind of the public has been filled with horror, and the strong arm of the law is earnestly invoked that punishment may speedily fall upon the guilty. The Knights are bound to put forth their utmost endeavor, not only to uphold the law but in self vindication, lest their name become a brand of infamy.

The manual training school at Chicago opened this season with more than 100 boys in attendance, who will have the use of heavy machinery and steam power to help them in their work. The first year's work will be devoted to carpentry, joining, pattern making, wood turning and the like. Second year pupils will be taught molding, casting, welding and forging of

iron, soldering, &c. The third year will be devoted to the machine shops, vise work, the making and tempering of tools, &c. This will conclude the mechanical course.

Admiral David D. Porter finds fault with the new navy. In a paper read before the United States Naval Institute at Annapolis he says: "Not one of the new vessels hitherto planned or built is fit for war purposes in time of hostilities. 'Cruisers' cannot cruise for want of sail power, and so-called line of battle ships cannot go into battle for want of endurance." He contends that by the reduction of sail power the vessels are unfitted for long cruises at sea; so we have "a squadron of evolution that cannot evolute."

A powder company just formed by Western capitalists have established headquarters in Chicago, with the intention of buying up small plants in various localities, and starting an opposition to the Dupont and Hazard concerns in the East. Their capital is $1,500,000.

Machinery Hall at the St. Louis annual exposition, now open, affords many attractions, among which are machinery displays by Essmueller & Barry, the Ewald Iron Company, Dehner & Wuerpel, an Ajax snow plow, F. E. Souther & Bro.'s corrugated roofs and a good variety of agricultural implements.

MANUFACTURING.

Iron and Steel.

The Allegheny Bessemer Steel Company, of Pittsburgh, with works at Duquesne, Pa., made the largest run in the history of the firm last month. During that period there was turned out 16,814 tons of rails; 20,000 tons of raw steel in the converting mill, and 17,000 tons of blooms. The improvements in the converting mill and the new blooming mill, now under way, will be completed in a short time. These improvements and additions will increase the capacity of the plant to 20,000 tons of rails per month.

Ground has been broken at Toledo, Ohio, for a new malleable iron works of large capacity.

The Park View Iron Works have been incorporated at Rockford, Ill.

The Marquette *Mining Journal* states that the reconstructed Northern Furnace at Chocolay will go into blast on September 15, or very close to that date. The furnace is a Marquette institution, being almost wholly owned by residents of that city.

It is expected that the muck bar mill plant of the Boston Iron and Steel Company, which bought the Alikanna plant, Alikanna, Ohio, will be ready for business within four months. The new works are located at McKeesport, Pa.

The Premier Steel Company, composed of capitalists of New Albany, Ind., have purchased the entire plant of the Indianapolis Rolling Mill for $132,000.

In our issue of last week brief mention was made of the fact that George K. Wheat, of Wheeling, W. Va., had purchased the plant of the Spaulding Iron Company, at Brilliant, Ohio, for $60,000. Associated with Mr. Wheat in the purchase are the following, all of Wheeling: Joseph Speidel, Alex. Updegraff, Morris Horkheimer, Andrew U. Wilson, William F. Stifel, William B. Simpson, Henry M. Russell, Robert Simpson, George W. Eckhart, Jr., and Thomas O'Brien. The property includes 20 acres of ground, 500 acres of coal land, and a well equipped nail factory and puddle mill. It is understood that the purchasers will at once apply for a charter under the laws of West Virginia, and will put the plant in operation as soon as possible. It has not yet been fully decided what specialty of iron will be made, but it is probable that the plant will be started up on muck iron. The amount of the sale, after paying expenses, will probably pay 60 per cent. of the indebtedness of the Spaulding Iron Company, which now amounts to $88,000. The unsecured creditors will get a very small percentage of their claims.

The Pittsburgh Forge and Iron Company, of Pittsburgh, have recently declared a dividend of 8 per cent.

McClure & Amsler, engineers and contractors, of Pittsburgh, and sole agents in this country for the erection of the Massicks & Crookes hot blast stoves, have closed a contract with the Carrie Furnace Company, of that city, for the erection of three stoves of that type, each 19 feet 6 inches by 65 feet. They are to be added to Carrie No. 1, which is undergoing repairs at present.

The Youngstown Steel Company, which was formed by the consolidation of the Youngstown Rolling Mill Company, the Trumbull Iron Company and the Warren Rolling Mill Company, have established a general office at Youngstown, Ohio.

On Saturday, September 6, the stockholders of the Jefferson Iron Works, of Steubenville, Ohio, held a meeting and elected the following Board of Directors: C. B. Doty, W. R. E. Elliott, W. H. McClinton and S. K. Spaulding, of Steubenville; Joseph Bell, John C. Riheldaffer, G. G. Hennan, of Wheeling. The board organized by electing S.K. Spaulding president; W. R. E. Eilliott, vice-president, and George P. Harden, secretary. Mr. Elliott holds the position lately held by Baron Lagerfelt. No decided action was taken in regard to rebuilding the nail factory recently burned. The nail machines in the factory will be taken out of the pit, and those worth repairing will be restored to their places. A force of men are at work preparing the present nail factory for work to fill pressing orders.

Ground was broken at Mckeesport, Pa., last week for the erection of the foundations of the new rolling mill projected by a company which has purchased the plant of the Alikanna Rolling Mill Company, at Alikanna, Ohio. The machinery will be tranferred to the new site. The new company will be known as the Boston Iron and Steel Company, and is composed of some of the members of the National Tube Works Company. The mill will be operated as one of the associate branches of that company.

Two new open hearth melting furnaces, with a capacity of 16 tons each, will soon be added to the Solar Iron Works of William Clark's Son & Co., at Pittsburgh. The two furnaces now in use are of 12 tons capacity each.

The following statement has been made by the Western Steel Company to the Worcester, Mass., *Gazette:* The suspension of their banking house in Boston may incommode the Worcester Steel Works and compel them to largely increase their stock under a new name—say the Worcester Steel, Coal and Iron Company, Limited—and possibly remove their works to Narragansett Bay, where their coal mine is, and near where there iron mine is. They have an abundance of both coal and iron ore and of most superior quality for making pig iron that will make the very best steel. The pig iron can be made at $3 per ton less than at Pittsburgh, and besides save the freight from there to New England. Rhode Island parties will take stock in it. Their property has recently been appraised by an English expert, and the result shows that the value is more than twice their indebtedness. Besides, they have other properties that, worked upon their own merits, will pay a good liberal dividend on more than $500,000, and worked in connection with their steel plant will pay 25 per cent. per annum on $1,250,000.

George B. Cowland, of Knoxville, Tenn., president of the British American Direct Steel Company, and Col. John F. Alexandar, consulting engineer of the company, recently spent some time at Hagerstown, Md., with the view of locating steel works there.

George Westerman, Sr., and James Westerman, of Lockport, and George L. Mason, of Buffalo, N. Y., are interested in forming a stock company to build and operate a rolling mill at Marion, Ind. The project is to build a mill of 50 tons capacity, and to employ natural gas.

Riter & Couley, of Pittsburgh, have just closed a contract with the Colorado Iron and Steel Company, of Pueblo, Col., for a complete new blast furnace 17 x 75 feet. It will be built adjacent to their present one at that place.

A large plant for the manufacture of steel for edge tools is shortly to be removed from Canada to Atlanta, Ga. The process employed will be an entirely new one.

Complications having arisen relative to the merging of the Pennsylvania Rolled Steel Company and the Continental Car Wheel Company, work has been suspended upon the new plant near Norristown, Pa. The stoppage is probably only temporary.

The rolling mills of the Rhode Island Horseshoe Company, Valley Falls, R. I., have resumed operations after a month's shut down.

The business of the Cambria Iron Company, at their works, has been organized in accordance with the resolution of the Board of Directors, and the officers are designated by the general manager, John Fulton, as follows: Herbert H. Weaver, assistant to the general manager; Jos. Morgan, Jr., chief engineer; Chas. S. Price, general superintendent of manufacturing; Alexander Hamilton, superintendent of rolling mills; James J. Fronheiser, superintendent of metallurgical department; Christie M. Breneiser, superintendent of forge and axle department; Fred. Krebs, superintendent of Gautier department; Thos. F. Hamilton, superintendent of Gautier mills; Alex. Stackhouse, superintendent of motive power; Joseph Masters, superintendent of lands and dwellings; Anson B. Cooper, superintendent of teams and farms; Marshal G. Moore, mining engineer; John H. Morley, engineer of railroads.

The stockholders of the Helmbacher Forge and Rolling Mill Company, St. Louis, Mo., have elected the following board of directors: James Green, M. Helmbacher, Geo. S. Edgell, G. L. Goetz and John N. Lauth.

The Crescent Nail Mill, St. Louis, Mo., started up on the 8th inst.

It is understood that the North Carolina Steel and Iron Company have been completely reorganized at a recent meeting of the directors, and that the contract for building the furnace has finally been let and work will begin at once.

The Pittsburgh Iron and Steel Engineering Company, of Pittsburgh, have just closed a contract with the West Superior Iron and Steel Company, of West Superior, Wis., for the erection of a three high 30 x 90 inch reversing plate mill, with independent roughing rolls, driven by a pair of 36 x 48 inch reversing engines. This mill is the first of this type ever built in this country, although in quite general use in England and Scotland. The principal output will be ship plate, which will be used in the mammoth shipyard now in course of erection in West Superior. A 20-inch bar mill with a full equipment is also being erected for the firm at the above place by the Pittsburgh Iron and Steel Engineering Company. It will furnish the shipyard with what structural material may be required. The last named firm has also closed a contract with the Embreeville Freehold Land, Iron and Railway Company, Limited, of Embreeville, Tenn., for the entire erection of a blast furnace 19 x 18 feet. Its equipment will be as follows: Three hot-blast stoves of the Cowper-Kennedy design, each 20 x 75 feet; one wrought iron hoist tower with cages 8 x 10 feet, with a hoisting engine 10 x 12; draft stack 12 x 180 feet; 14 two flue boilers, 54 feet long and 30 inches in diameter, and an all iron stock house, 75 x 200 feet. Work on the furnace will be pushed vigorously and it will be put in blast at the earliest date possible. The furnace will use native ores and Pocahontas coke.

Furnace D, of the Edgar Thomson Steel Works, Braddock, Pa., is now making spiegel.

The Swift Iron and Steel Works, at Newport, Ky., have been bought by the Ironton Steel Works Company. The works will be rebuilt and enlarged.

The secretary of the Pennsylvania Steel Company has called a special meeting of the stockholders, to be held October 1, to make arrangements for increasing the capital stock from $2,767,800 to $5,000,000. The company have just constructed one of the most complete iron establishments in the country at Sparrow Point, on Chesapeake Bay, at a cost of $2,500,000. A mortgage for $1,000,000 at 5 per cent. has been placed upon the property, and the balance of the money will be provided by the proposed stock issue.

The Newport Iron and Steel Works, Newport, Ky., have passed into the hands of the Ironton Steel Company, Ironton, Ohio, the purchase price being $100,000. It is proposed by the purchasers to rear on the site of the present mill a steel plant of great size, and plans are already being drawn up with this end in view. The company state that fully $250,000 will be expended in enlarging and improving the plant, which will take five months, after which a company will be organized to control the mill. The 18-inch bar mill, the plate mill and muck mill, and the furnaces belonging to them in what is known as the new mill, are now being overhauled, and where necessary new machinery will be added. A large engine will be placed in the south end of the old building to run the muck mill. The capacity of the blast furnace will be increased from 65 tons, its present capacity, to 150 tons. A large foundry and machine shop will be built, and every department will be brought up to the latest developments in modern steel works.

Work on the new plant of the Tiffany Iron Company, Tecumseh, Mich., is being pushed with all possible speed.

The United States Rolling Stock Company, Anniston, Ala., are rapidly making the machinery for the new rolling mill which they will soon build.

The Tonawanda, N. Y., Iron and Steel Company will resume operations again about the last of October. A Brown hoist has been

built for the handling of ore, 32,000 tons of which has been ordered for this season's delivery.

The Ohio Iron Company's rolling mills, at Zanesville, Ohio, have been closed nearly four months on account of the refusal of the company to sign the scale of the Amalgamated Association.

Furnace No. 1, of the Blair Iron and Coal Company, at Holidaysburgh, Pa., operated by the Cambria Iron Company, of Johnstown, Pa., will be put in blast about Octobef 1, next.

The Ætna Iron and Steel Company, of Bridgeport, Ohio, are erecting a new building over the two batteries of boilers that were put in their plant this summer. A meeting of the stockholders of the firm will be held in a few days for the purpose of considering a proposition to increase the stock to $500,000. The output of the plant for the next 60 days has all been sold ahead.

R. A. Bret, of Chicago, has been in consultation with the leading business men and manufacturers of Evansville, Ind., with the object of establishing a steel car plant at that place. It is said that his plans have been favorably received, and that there is little doubt about his success.

The capacity of the Moline, Ill., iron works is to be increased by the addition of a brick building 72 x 130 feet.

On Monday night, the 1st inst., the Edgar Thomson Steel Works, of Carnegie Brothers & Co., Limited, at Braddock, Pa., again broke their highest record for production. During the night turn of 12 hours 81 heats were made, with a total output of raw steel of 850 tons in the converting mill. The blooming mill made 73 heats and the rail mill over 2500 rails. On the following day turn 75 heats were made in the converting mill and 2106 rails were turned out. The highest previous record was 74 heats, made in March of the present year.

Meriwether Jones, of Richmond, Va., who is very well known in connection with the iron trade of that section, has leased the rolling mill at Iron Gate, Va.

E. W. Cricton, furnace superintendent of the Oregon Iron and Steel Company, at Oswego, Ore., reports that the furnace turned out during the month of August in 28 days running time 1338 tons pig iron, an average of 48⅛ tons per day. The best week's product was 355 tons; the best daily turn out 68 tons.

The experimental test of the manufacture of dolomite brick for the lining of open hearth furnaces at the works of the Pennsylvania Steel Company, Steelton, was a very successful one.

Machinery.

The Land Rolling Mill Machine Company, of Alliance, Ohio, composed of the firm of Armstrong, Transue & Betts, have sold their interests to Fred Baugh & Co., boiler manufacturers, of that place. The purchasers propose to enlarge the works and increase their working capacity at once.

The Brainard Milling Machine Company, of Hyde Park, Mass., recently shipped to Kilbourn, Scotland, five of their largest machines, and report that their products are finding a market in all the large industrial centers of Europe.

The Brunswick Foundry, Machine and Mfg. Company, of Brunswick, Ga., have put in operation their large new foundry.

The machinists in the employ of the Lloyd-Booth Company and William Tod & Co., both of Youngstown, Ohio, have had their working hours reduced from ten to nine, without any reduction in wages.

The name and style of the firm of Clapp & Co., Concord, N. H., has been changed to the Concord Foundry Company.

The Vulcan Boiler Works, Toledo, Ohio, have been incorporated, with a capital stock of $35,000. The new company will manufacture boilers on a large scale under patents owned by J. J. Cronin.

The Goshen Foundry and Gas Machinery Company's property, at Goshen, N. Y., is to be sold at auction October 4 by Edward H. Kelly, referee, in pursuance of a judgment obtained by William T. Russell, trustee for the bondholders of the company.

There is considerable rivalry between Findlay and Salem, Ohio, as to which shall secure the Salem Wire Nail Company.

The Ball Engine Works, of Erie, Pa., are crowded with orders, and report business enough on hand to keep them running day and night until February. The recent additions to the plant have greatly increased their capacity.

The strike at the plants of the Westinghouse Machine Company and the Westinghouse Electric and Mfg. Company, at Pittsburgh, which has been in existence for five or six weeks, is about at an end, and the men have been defeated. The old employees are returning to work at the company's terms as fast as room can be made for them, while some of the men will not be taken back under any consideration. Both plants are now in full operation.

The Le Van Boiler Company have filed articles of incorporation. The company will construct and sell steam boilers, furnaces and other machinery in Paterson, Camden and Philadelphia, the factory to be located in the latter city.

Fay & Scott, Dexter, Maine, manufacturers of machinists' tools have finished the new extension to their works, and expect to have the machinery in place at an early day.

The Empire Plow Company, Limited, formerly of Allegheny, Pa., have moved their plant to Cleveland, Ohio, in order to be nearer the agricultural districts. Liquidating trustees have been appointed to close up the affairs of the association and to apply and distribute its assets according to law. They are S. H. Hartman, E. S. Hartman and Clark Bishop. The members of the old firm will organize a new corporation under the laws of Ohio.

A. J. Sweeney & Son, of Wheeling, W. Va., have closed a contract with the Pennsylvania Plate Glass Company, of Irwin, Pa., for a large lot of plate glass machinery. The contract is a very large one and will take the firm about six months to complete it.

The machine shops of Bovaird & Seyfang, Bradford, Pa., were destroyed by fire recently.

New Portage, Ohio, has been selected for the location of a large boiler works, a blast furnace and a rolling mill, which will be operated by a syndicate or stock company, known as the Sterling Mfg. Company, with O. C. Barbour, of New York, president; Allan M. Sterling, secretary and treasurer, and Thomas J. Deegan, of James P. Witherow & Co., general manager. The organization have a paid in capital, of $500,000. The company contemplate erecting a tube works to be operated in conjunction with the other plants.

The Totten & Hogg Iron and Steel Foundry Company, of Pittsburgh, are actively engaged in filling orders for rolls made expressly for the manufacture of tin plate, for parties who are anticipating the passage of the tariff bill. They have quite a number of orders of this kind. They have also just completed a 16-inch bar train for the Fort Payne Rolling Mill Company, of Fort Payne, Ala., consisting of three sets of three high and two sets of two high rolls, so constructed that all structural iron can be rolled in the same train without making the changes that usually have to be made.

The Griffin Wheel and Foundry Company will soon occupy their new plant, now in process of erection, on California avenue, between the Chicago, Milwaukee and St. Paul and the Chicago and Northwestern Railway tracks, Chicago. The works will be complete in every respect. The main foundry building, which is a brick structure, is 200 x 378 feet, and will have a capacity of between 700 and 800 wheels per day. Adjoining this will be the machine shop, 75 x 150 feet, containing all the latest machinery and tools for fitting car wheels for locomotives, cars, electric motors, &c., also the company's special appliances for grinding and balancing car wheels. They have ample ground, a complete system of narrow gauge tracks, elevators, &c., for the economical handling of material and ample switching facilities, enabling them to reach all roads entering Chicago. They will employ between 200 and 300 men, and will consume yearly between 60,000 and 70,000 tons of iron, 10,000 to 15,000 tons of coke and several thousand tons of sand for molding purposes. The output will be confined wholly to car wheels, making chilled iron wheels of every kind and variety. The principal office will be located at the works and the city office in the Phenix Building.

The Dwight Mfg. Company, Chicopee, Mass., will build a new machine shop, 210 x 40 feet, of brick and two stories high.

Hardware.

The Peters Cartridge Company, whose plant at King's Mill Station, Ohio, was entirely destroyed recently by an explosion, have been busily engaged in the rebuilding of their factories, and will, some time during the current week, have the cartridge loading shops in running order. Their shell department will not be ready for several weeks yet. The capacity of both departments will be considerably greater than the old works.

The increasing business of the Ruka Bros. Mfg. Company, Boscobel, Wis., has necessitated additions to their warerooms, which, when completed, will give them a brick building 60 x 120 feet, three stories high. Their goods find a market in Wisconsin, Iowa, Minnesota and Dakota, and comprise farm and spring wagons, carriages, buggies, bobsleighs, road scrapers, harrows and wood sawing machines.

The S. Obermeyer Foundry Supply Company, Cincinnati, Ohio, are introducing a new specialty to foundry men, which they term "alluminum ferro-silicon alloy," with marked success, and to which they allude as insuring softer, denser and cleaner work; can be safely used with scrap and cheaper pig iron, and for work to be finished or subject to pressure it is invaluable, 10 pounds being sufficient to treat 1 ton of iron. It is put up in packages of 300 pounds each.

At the saw, tool and file works of Henry Disston & Sons a steady increasing business is noticeable. Improvements and extensions are constantly in progress, involving very heavy expenditures of money. They now have on their pay rolls upward of 2000 hands, which will probably be further increased in the near future. Business is said to be good in all their various departments.

Enterprise Mfg. Company continue, as from the commencement of their business career, to steadily increase their facilities. From about 30 or 40 hands in 1870, they crept up to something like 200 in 1880, their present force being a trifle over 800, all on full time.

The Superior Horse Nail Company, of Chicago, have concluded to move their factory to Kankakee, Ill., and to materially increase their capacity by the addition of new machinery.

Holmes, Booth & Haydens, of Waterbury, Conn., are building a new wire mill.

The manufacture of plumbago crucibles as continued by the Joseph Dixon Crucible Company, Jersey City, was commenced by Joseph Dixon 63 years ago, the company not being incorporated until the year 1868. At the time the industry was started in this country, Germany was the only source of supply, but their crucibles were of an inferior construction, lasting only three or four meltings and liable to crack before the first day's work was done, entailing loss of metal and time. The Dixon crucibles proved so much superior, being serviceable for from 40 to 60 pourings, that they rapidly became the standard, and were adopted by the United States and foreign governments for mint purposes. The materials used in the manufacture of crucibles by this company are required to come up to a high laboratory standard, and are manipulated by men of long experience, some of whom have been in the company over 30 years, while others have been employed at the same benches from 10 to 20 years.

New Haven, Conn., experienced one of the largest fires which has occurred for years, on September 5. At about 1 o'clock in the morning flames were discovered in the upper floor of the New Haven Wire Goods Company, on State street, and although the fire was soon under control of the firemen the building was badly burned, and the greater portion of the stock destroyed.

Miscellaneous.

The Raymond Lead Company, Lake and Clinton streets, Chicago, have recently added another building to their works. The new building fronts on Clinton street and runs along the rear of the original building. Its size is 43 x 150 feet, and it consists of three stories and a basement. It has been specially adapted to the requirements of the Raymond Lead Company, and is used for their mixed metal department, machine shops and other branches which had become uncomfortably crowded in their old quarters. More room had been imperatively required. The extension adds fully one-third to their previous facilities.

A license to incorporate has been granted by the State of Illinois to the Chicago Wire Goods Company, at Chicago, to manufacture wire goods; capital stock, $100,000; incorporators, Charles Kelley, B. W. McClellan and W. A. Hickey. Also to the Chicago Whip Company, at Chicago, to manufacture whips and saddlery; capital stock, $100,000; incorporators, L. L. Sperry, William H. Hays, Charles S. Burton. Also to the Thwing Electric Company; location, Chicago; to manufacture and deal in electric lamps and supplies; capital stock, $1,000,000; incorporators, Wilber J. Andrews, Charles B. Thwing and Charles E. Piper. Also the Hynson Hardware Company; location, East St Louis; to conduct a general hardware business; capital stock, $15,000; incorporators, A. R. Hynson, M. P. Hynson and R. A. Coonsman.

The Batavia, N. Y., Wheel Company, have closed down for two weeks in order to put in a new engine and machinery.

The newly organized Iron Car Equipment Company, of New York, successors of the defunct Iron Car Company, have entered a mortgage in Huntingdon, Pa., for $3,000,998, representing the par value of the stock of the new company. The Huntingdon Mfg. Company, who failed in consequence of the Iron Car Company's failure, have been reorganized and will be operated under the direction of the New York company.

The Iron Age

New York, Thursday, September 11, 1890.

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JOHN S. KING. - - - - BUSINESS MANAGER.

The Strength of the Iron Situation.

The fact is patent to all, and yet there are perhaps few who really think of it, that there has seldom been a period in our history when the iron trade was so free from special causes of prosperity. The demand for iron and steel this year surpasses anything before experienced. Yet no one is able to give a controlling cause, or even several controlling causes, which are specifically responsible for this condition of affairs. The demand for steel rails is healthy but not extraordinary—in fact, it is but slightly in excess of last year. Shipbuilding is active, but the excess in the consumption of iron and steel in that direction over last year would not account for very much increased business among the rolling mills. Carbuilders are busy, but they do not constitute such an important wing of the iron-consuming host that they could be singled out as causing the heavy demand. More iron and steel are going into buildings than formerly, it is true, but an annual increase of 100,000 tons in that direction would be an enormous growth. It would take booms in several such branches of the iron trade to affect the whole line.

This is probably a good way to put the case. Every manufacturer interviewed, every merchant who gives his experience, says that never before in his history was the demand from his customers of so general a nature. Iron and steel are wanted on all sides and by all classes of consumers. The wagon builder, the implement maker, the plow manufacturer, the bridge builder, the machine tool maker, the manufacturer of mining machinery, all are driven with work as they never were before. It is the experience of those providing shaftings, pulleys and other outfits for general mill work that facilities are being increased by all kinds of shops and factories, large and small. There is work to do everywhere, and in the West particularly, there is a scarcity of hands to do it.

It cannot be otherwise than a wholesome condition of business when the demand is so general that it is hard to give its leading features. The whole country cannot at once drop into a state of collapse. The railroad booms of the past were so marked that a collapse was inevitable as soon as railroad building diminished. The prosperity of to-day, however, has nothing of the boom in it, but is based on a hundred sources of strength. This is the reason why prices are maintained so steadily, notwithstanding the predictions of a slump on the one hand and the prophecies of an advance on the other which have been current throughout the summer.

The Russian Oil Fields.

The Russian petroleum production, in what is called the Baku region, bordering on the Caspian Sea, has been a menace to the American oil trade ever since the first discoveries were announced. Being near to the markets of Europe, where oil is most in demand, the Russian producers would place all others at a disadvantage, if it could be demonstrated that the quality of the oil from the Baku wells is equally good. But until the improved processes of refining were introduced at Baku Russian oil was acknowledged to be far inferior to the best American. Nevertheless it has entered largely into consumption, and at various points has been an active competitor. The foreign Consuls at Batoum, both British and American, have lately given the subject close attention and reported fully to their respective governments with reference to rumored signs of exhaustion. The producing territory near Baku is known to comprise only about 1500 acres, but in wide districts beyond there are oil lands, largely held in reserve by the crown, which may prove capable of development, almost without limit. These lands, according to one of the most successful Russian producers and refiners, extend all along the Caspian Sea, from Petrovsk to the river Koora. It is conceded, however, that on account of the greater difficulty of obtaining oil from the lower strata, there is a necessity for pushing explorations into new territory, although it does not yet appear who will undertake the work, there being large monetary requirements, where the Government is a factor, while as yet there is no organization among producers to give solidity to capital. Another element of uncertainty arises from the peculiar geological structure of the regions referred to, circumstances pointing to the fact that "the oil in the earth is continually moving about from one place to another, with the aid of gases or from other causes." These views are accepted by the American Consular Agent Chamber, at Batoum, as being a correct expression of the opinion of the whole trade, and one that can be regarded with confidence in America.

In regard to the Baku region proper, all statistics of production show how difficult it is to increase the yield by multiplying the ordinary pumping wells. In past years wells have been struck in Baku territory which have produced 50,000 barrels per day each, but no such wells were ever obtained at the depths it appears now to be necessary to drill. Consequently prices are increased, making it more doubtful whether Russian oil can be profitably exported, unless there is a corresponding advance in foreign markets.

Respecting the merchantable character of Russian oil the American consular agent says: "That it will never bring as good a price in the world's markets as American seems quite clearly established, because, even if its illuminating properties were equal, its weight makes it less valuable when it is bought by weight and sold by measure, which is the case almost the world over, the American refined being much lighter—45° Baumé, against 40° Baumé of Russian oil." Much relief was hoped for, at the date of the advices here given, as a result of the scheme for constructing a combination pipe line for crude oil from Baku to Batoum. London advices of the latest date confirm the reports previously current respecting the depression existing in the Russian oil trade on account of the reduced margin of profit, competition being the main cause, although there were other adverse influences, such as inadequate transport, the fluctuating value of currency and a hostile climate tending to the same result. Another disturbing factor, which is given special prominence in a dispatch from Odessa of August 28, is the fierce competition brought about by the American tank system. Ever since the employment of tank ships for the transportation of oil, "the Americans have been steadily beating back their Russian competitors" by underselling the dealers of the Old World. The oil reservoirs at Batoum, the account says, were all filled, in the absence of demand. This is a new development, which the "Westerners" doubtless anticipated in their calculations of gain.

Reciprocity with Canada.

A possible solution of the commercial questions between Canada and the United States, which have caused so much acrimonious discussion for a long time past, has been brought to view by Senator Sherman's resolution presented in Congress. Canadians catch at it with eagerness, and most forward of all in hailing the light of a coming day is the Conservative party, who hold the helm of State at Ottawa—a fact of deep significance, just now, because they were charged by the Liberals, under the lead of Sir Richard Cartright, with being the chief obstruction to any reciprocal arrangement. The resolution, it is more than intimated by Canadian journalists, may have been drawn up by a member of the Provincial Government of Nova Scotia, who visited Washington for the express purpose of having the scheme incorporated in the new Tariff bill, immediately pending the debate.

The scheme, in substance, contemplates the bringing together, under the authority of Congress, of duly appointed representatives of both countries, "to consider the best method of extending the trade relations between Canada and the United States, and to ascertain on what terms greater freedom of intercourse between the two countries can best be secured." The ministerial organ at Montreal professes to discern a wide and radical difference between this proposition and others hitherto submitted, like those of Wiman, Hitt and Butterworth. "It is true, says the *Gazette*, that the scheme of a commer-

cial union has been scouted by the Conservative party, and will, we believe, continue to receive its steady antagonism, for reasons often set forth, and ample to justify that attitude, but between commercial union and a measure of reciprocal trade consistent with the maintenance of British connection and the preservation of the political entity of Canada there is a great gulf fixed." The project of Senator Sherman, the editor says, simply "aims at a negotiation for the purpose of ascertaining upon what lines and to what lengths commercial reciprocity between the two countries can be established acceptably to both," without any surrender of principles dear to the loyal subjects of Great Britain.

To have brought about so suddenly a change of front on the part of the staid Conservatives, they must have received from some source a new revelation. The unavoidable conclusion is, that at the precise moment when the clamor of the Liberals for reciprocity was most threatening to the stability of the Macdonald administration, Secretary Blaine's friendly overtures opened the way of escape. The extended hand they are ready to grasp. They reason that if reciprocity with South America would be beneficial to the United States, the advantages to accrue from "freedom of intercourse" on the Northern border would be still more manifest. An Ottawa despatch represents the reputed author of the Sherman resolution, Mr. Longley, of Nova Scotia, to have been highly gratified with his reception at Washington and to be hopeful of the results. In any case, the exchange of views must aid in a better mutual understanding between the two Governments.

The Chicago *Inland Architect* for August contains an editorial on the labor question, in which appears a decidedly original suggestion. The writer would have a law passed that "no union should be allowed to organize or hold meetings, secret or otherwise, without depositing a good and sufficient bond that could be sued against and collected from when sufficent evidence was established that the union was either directly or indirectly responsible for the damage done. . . . Labor's antithesis, capital, should likewise be controlled and combinations made a felony." A guarantee bond by a labor or trades union, if so drawn and constituted that it would really be worth something, would be quite a check on lawless proceedings, it must be acknowledged, but how could the necessary legislation be procured and what would constitute a sufficient bond? It is easy enough to propose drastic remedies for all sorts of ills, but a remedy to be reasonable as well as effective must have the merit of being feasible. In the present condition of public opinion in this country the tendency is rather toward giving workingmen more latitude, as practical politicians find out the increasing voting strength of organized labor. Trades unions are recognized by the laws of many States, and it is rather late now to advocate restrictive legislation.

OUR ACTIVE FURNACES.

As was expected, current production has somewhat recovered from the falling off in July, and is now again larger. This is due chiefly to the blowing in of a number of coke furnaces of large capacity in different parts of the country. A further increase is expected during the current month through the resumption of plants now undergoing repairs.

As compared with previous months, the record stands as follows:

	Furnaces in blast.	Capacity per week. Gross tons.
September 1	323	171,776
August 1	324	164,798
July 1	336	175,727
June 1	345	180,791
May 1	344	180,099
April 1	344	178,474
March 1	343	180,991
February 1	334	173,651
January 1	333	174,068
December 1	328	169,151
November 1	323	165,225
October 1	311	151,057
September 1	294	134,068
August 1	286	145,899
July 1	285	141,419
June 1	286	137,119

On the 1st inst. the following anthracite furnaces were running:

Anthracite Furnaces, September 1.

Location of furnaces.	Total number of stacks.	Number in blast.	Capacity per week.	Number out of blast.	Capacity per week.
New York	23	9	3,273	14	3,600
New Jersey	14	6	2,705	8	2,895
Spiegel	3	3	219	0	0
Pennsylvania:					
Lehigh Valley	45	34	12,739	11	3,995
Spiegel	1	1	69	0	0
Schuylkill Valley	37	21	8,190	16	4,725
U. Susquehanna Valley	18	11	3,301	7	2,620
Lebanon Valley	16	9	3,657	7	3,116
L. Susquehanna Valley	17	9	4,637	8	1,835
Spiegel	1	1	325	0	0
Totals	175	104	39,115	71	22,746

For the past 15 months our records show the following:

	Furnaces in blast.	Capacity per week.
September 1	104	39,115
August 1	106	41,013
July 1	112	42,543
June 1	117	45,142
May 1	123	46,912
April 1	119	46,110
March 1	115	45,790
February 1, 1890	107	43,905
January 1, 1890	105	42,857
December 1	100	40,053
November 1	96	40,603
October 1	94	36,558
September 1	93	35,997
August 1	88	34,277
July 1	89	34,142
June 1	91	34,386

On the whole the changes among the anthracite furnaces have been few. In New York the Burden furnace was blown out on August 9, but, on the other hand, Onondaga, under the new management, blew in during the month. No changes whatever are reported from New Jersey, and none of much consequence from the Lehigh Valley. In the Schuylkill region Allentown is doing exceptionally good work. At Hokendauqua all six furnaces are running, while Carbon has one out. In the Upper Susquehanna Valley, Marshall was expected to resume early in the month, while in the Lower Susquehanna Valley the Pennsylvania Steel Company now has three furnaces blowing on Bessemer pig, while only one is on spiegel. The current make of the Lebanon Valley has been considerably reduced by the blowing out for repairs of a number of furnaces.

The status of the coke furnaces was as follows:

Coke Furnaces, September 1.

Location of furnaces.	Total number of stacks.	Number in blast.	Capacity per week.	Number out of blast.	Capacity per week.
New York	4	3	3,210	1	559
Pennsylvania:					
Pittsburgh district	22	19	23,694	3	3,046
Spiegel	1	0	0	1	833
Shenango Valley	19	15	10,627	4	2,953
Juniata and Conemaugh Valley	17	10	5,860	7	3,825
Spiegel	1	0	0	1	500
Youghiogheny Val	5	2	868	3	1,454
Miscellaneous	4	2	1,204	2	1,180
Maryland	5	2	3,640	3	3,830
West Virginia	6	3	2,644	3	770
Ohio:					
Mahoning Valley	14	12	9,093	2	1,410
Central and Northern	18	13	10,555	5	3,785
Hocking Valley	14	4	1,604	10	2,300
Hanging Rock	14	3	710	11	2,057
Indiana	2	1	240	1	210
Illinois	14	14	15,388	0	0
Wisconsin	4	3	2,454	1	370
Missouri	6	2	1,550	4	2,150
Colorado	2	1	450	1	430
The South:					
Virginia	13	9	4,705	4	2,177
Kentucky	4	3	848	1	310
Alabama	37	24	15,776	13	7,136
Tennessee	17	7	3,312	4	1,890
Georgia	2	2	790	0	0
North Carolina	1	1	125	0	0
Totals	240	156	119,757	84	42,775

As compared with the 15 previous months, the active coke furnaces make the following showing:

	Furnaces in blast.	Capacity per week.
September 1	156	119,757
August 1	150	113,040
July 1	163	120,673
June 1	167	123,340
May 1	169	122,489
April 1	173	121,560
March 1	169	122,595
February 1	169	118,568
January 1, 1890	169	119,396
December 1	162	116,319
November 1	160	112,369
October 1	154	102,454
September 1	141	96,744
August 1	137	96,720
July 1	136	96,584

In the Shenango Valley Fannie has gone out of blast, but the Spearman furnace resumed early in the month. In the Juniata and Conemaugh Valleys the same furnaces are producing, which holds true also of the stacks in the Youghiogheny Valley, and with those which we group as miscellaneous. In West Virginia, the Top Mill furnace completed its repairs during August, having blown the last 18 days of that month. In the Mahoning Valley it is a matter worthy of record that Girard furnace has now been running for three years and ten months, and during that period has produced 2000 tons of pig iron on one lining. Among the furnaces in Central and Northern Ohio, it may be noted that Cherry Valley blew in on August 17, and that Emma ran during the greater part of the month. In the Hocking Valley, Crafts furnace blew out on August 15, chiefly on account of short water supply. It is expected to resume on September 20. One of the Floodwood furnaces became a producer during the month. In the Hanging Rock region, Fulton, Hamilton, Bellefonte and Tropic furnaces are idle. Sarah blew out on August 14, making the longest blast on record in the Hanging Rock region. The furnace blew in on January 27, 1886, and was, therefore, in operation 4 years 6 months and 17 days. In Indiana, Vigo ran during the greater part of the month, and Brazil is expected to start in September. Every active furnace in Illinois was in blast on September 1, all four furnaces of the Union Works of the Illinois Steel Company now being in operation. We have no changes to report from Wisconsin, Missouri or Colorado. In the South, Virginia started the month with the same plant in operation, to which,

however, during the current month are to be added the Princess and the Pulaski furnaces. In Alabama, three of the De Bardeleben furnaces were in active operation on September 1, one of the North Birmingham furnaces of the Sloss Company started in August, and the new Vanderbilt furnace was added to the list on August 23. Talledaga is probably blowing at this writing. In Tennessee, one of the Nashville furnaces started on coke on August 12, and the Sewanee furnace of the Tennessee Coal, Iron and Railroad Company resumed after repairs in August.

The status of the charcoal furnaces was as follows:

Charcoal Furnaces, September 1.

Location of furnaces.	Total number of stacks.	Number in blast.	Capacity per week.	Number out of blast.	Capacity per week.
New England	14	6	520	8	570
New York	8	3	370	5	523
Pennsylvania	16	5	480	11	590
Maryland	6	2	450	4	330
Virginia	18	4	195	14	680
Ohio	11	7	441	4	170
Kentucky	2	1	112	1	100
Tennessee	6	4	1,007	2	130
Georgia	3	1	140	2	155
Alabama	14	7	1,544	7	1,753
Michigan	27	16	5,079	11	3,029
Missouri	2	2	630	0	0
Wisconsin	6	3	1,430	3	710
Texas	1	1	170	0	0
California	1	0	0	1	120
Washington	1	0	0	1	170
Oregon	1	1	336	0	0
Total	137	63	12,904	74	9,030

As compared with previous months the record stands as follows:

	Furnaces in blast.	Capacity per week.
September 1	63	12,904
August 1	59	10,745
July 1	61	12,511
June 1	61	12,312
May 1	52	10,698
April 1	52	10,804
March 1	59	12,606
February 1	58	11,378
January 1, 1890	59	11,485
December 1	66	12,779
November 1	67	12,893
October 1	63	12,047
September 1	60	11,327
August 1	61	11,902
July 1	60	10,727

On the whole there are very few changes of consequence among the charcoal furnaces. Boiling Springs, in Pennsylvania, was to go in on the 8th with a year's supply of charcoal in sight. In Maryland, Isabella, a new stack with brick stoves, is in blast, with a weekly capacity of upward of 300 tons. One of the Maryland Company's furnaces is to resume on the 15th. In Michigan, Excelsior started on the 22d ult., the second Pioneer on the 11th ult., while Chocolay is expected to blow on the 15th inst., the two Antrim furnaces having been doing particularly good work in August, while in Wisconsin Hinkle made a large product. In Alabama, Attalla was idle on the 1st inst., and Round Mountain has stopped on account of the scarcity of labor, the supply of which appears to be a factor of growing importance in the whole iron trade. Tecumseh is expected to blow in on the 15th. Oswego furnace, in Oregon, has been doing particularly creditable work since it was blown in last month.

Reports of stocks from 32 Anthracite furnaces, having a capacity of 10,674 tons per week, show holdings of 71,420 tons, while 96 coke stacks, which have a capacity of 64,659 tons weekly, report a stock of 210,310 gross tons.

The recent reductions in freights on materials used in smelting iron ores, which originated with the Reading Company, has been, or will be followed by all the other railroads in Eastern Pennsylvania. It is estimated that the cost of production of pig iron is reduced in some localities nearly $1 per ton, a matter of vital importance to the iron trade at this time.

Washington News.

(From Our Regular Correspondent.)

WASHINGTON, D. C., September 10, 1890.

The vote on the third reading and engrossment of the House Tariff bill and amendments in the Senate stood—yeas, 38; nays, 28—on strict party lines. The separate votes on the sugar, tobacco and reciprocity amendments consumed but a few hours, having been taken without debate. The metal schedule did not come in for any special attention. Some of the most important work on the bill as it stands amended by the Senate will now be put in by parties representing certain interests. No changes can be made in conference except within the provisions of either the House bill or the Senate amendments. The metallurgical interests favor the House metal schedule, and will put in their best efforts to secure its adoption as a whole by the Senate. As the latter body has been claiming that their amendments are more in conformity with equity and the public interests, it is doubtful whether the Senate *confrères* will be willing to yield much of anything material.

The two features of general legislation by the Senate in the bill are the reciprocity and the customs commission clauses. The new line of economic policy embodied in the Aldrich amendment, which was adopted, is the outgrowth of the recent Pan-American Congress, provides that with a view to secure reciprocal trade with countries producing the following articles, and for this purpose and after July 1, 1891, whenever and so often as the President shall be satisfied that the government of any country producing and exporting sugars, molasses, coffee, tea and hides, raw and uncured, or any of such articles, imposes duties or other exactions upon the agricultural or other products of the United States, which, in view of the free introduction of such sugar, molasses, coffee, tea and hides into the United States, he may deem to be reciprocally unequal and unreasonable, he shall have the power, and it shall be his duty, to suspend by proclamation to that effect the provisions of this act relating to the free introduction of sugar, molasses, coffee, tea and hides, the production of such country, for such time as he shall deem just and in such case and during such suspension duties shall be levied, collected and paid upon sugar, molasses, coffee, tea and hides, the product of or exported from such designated country as follows, namely:

(Here follows the specified rates.)

There has been considerable indorsement of the reciprocity scheme by manufacturers. The following is the substance of a communication from James H. Mann, treasurer of the American Axe and Tool Company, of Pittsburgh, Pa.: "We have 14 large factories in our corporation and make and ship three-fourths of all the axes made in the United States. We approve of reciprocity as set forth in amendments to Tariff bill offered by Hon. John Sherman and Hon. A. W. Aldrich. The duty on our goods going into countries North and South of us will average $1.60 per dozen. Germany and England, with their cheap labor, have secured almost all the South American, Mexican and West India trade. With reciprocity our trade would be increased tenfold, as American axes and tools are the best in the world. All we want is a chance to spread ourselves."

Commercial Reciprocity.

VIEWS OF RHODE ISLAND IRON MANUFACTURERS UPON THE SUBJECT.

The subject of commercial reciprocity with other countries is one of considerable interest to Providence manufacturers, and particularly so to those engaged in the iron and steel industries. It is understood that a member will, at the next meeting of the Board of Trade, introduce a resolution bearing directly upon this question, and providing for the appointment of a committee of the Board to draft a resolution, to be acted upon by the members, directing the Rhode Island Senators and Representatives in Congress to do what they can to secure the establishment of commercial reciprocity between the United States and foreign countries.

Gardiner C. Sims, of the Armington & Sims Engine Company, one of the Rhode Island Commissioners to the World's Columbian Exposition, expressed himself in favor of commercial reciprocity. He said: "The Armington & Sims Company, as is well known, makes engines for electric light uses, which are shipped to various parts of the world. A great many have been sent to Peru, South America, through the New York agency of William R. Grace, ex-Mayor of that city, who now represents very large business interests in Peru. Engines are also sent to Brazil and to the Argentine Confederation in large numbers, and lighter shipments are made to other States in South America and to Mexico. With the latter country quite a large business is carried on through agents in New York. Under a reciprocity treaty with Canada, Mexico and South America, the mechanical industries of this country would receive great benefits, and the advantages would be shared by the people. With coal and iron from Canada, in the event of such a treaty as proposed, the Armington & Sims Company could greatly reduce the cost of manufacturing their engines and could consequently sell them at lower figures than now is possible." That labor need not fear disastrous consequences following reciprocity, Mr. Sims instanced a peculiar case which came directly to his knowledge. The Italian Government several years ago called for bids for the manufacture and delivery of engines, such as the Armington & Sims Company make. Bids were received from England, France, Germany and the United States, and the Providence firm got the award, having bid 25 per cent. less than Canada, and 20 per cent. less than England. Representatives of competing houses came here from Canada and England, curious to learn the secret of lower prices for the best goods. They found that, with all the increased cost of coal and iron and higher wages, the Americans had such improved machinery and methods and were such expert mechanics, this country could lead the world in this line. In England, in the same branches of work, mechanics were paid about $1.50 per day, while here the pay averaged $3 per day. In England there was a lack of mechanical education; men were kept in the routine of one department, and were expected to stay there, while in this country they could become familiar with the details of all departments. At the works of the Armington & Sims Company the men have the privilege of going, during certain hours, from one department to another, and are expected to gradually familiarize themselves with all the work. The fact that American high cost labor could turn out engines at a lower price than the cheaper labor of England caused Mr. Sims to smile at the very mention of America's danger from the "pauper labor" of the other country.

To emphasize the disadvantages under which exporters to Canada were placed by the existing tariff, Mr. Sims alluded to a little experience of his own. He wanted to make a shipment to that country, and so put several questions to the authorities. He proposed, first, to send castings, then parts of engines, then engines complete, with the exception of the patented parts, in order to ascertain if they could do better by finishing the work in the Dominion. The answer was that, whether they sent goods in the rough, finished or in part, the import duty would be 25 per cent. Mr. Sims sincerely believes that reciprocity with the countries named would be a national benefit, and would infuse new life into New England manufactures.

R. A. Robertson, Jr., treasurer of the Builders' Iron Foundry, which concern has large Government contracts, expressed himself in favor of reciprocity not only with South America and Canada, but with Germany, France, Belgium and other countries which would open desirable fields for American products. Such a treaty with Canada would mean cheaper coal and iron, but universal reciprocity would bring far greater benefits to this country's commerce. Reciprocity with South America would enable American manufacturers to enter into direct competition with English people, and the greater portion of the machinery for South America is now made in England and Belgium. The Builders' Iron Foundry has shipped heavy parts of machinery to South America through agents at New York, the lighter parts being supplied by England. The concern could, under a reciprocity treaty, compete with England in the shipment of sugar machinery to Cuba, for which there is already a demand.

Joseph Lythgoe, agent and superintendent of the Rhode Island Locomotive Works, expressed the opinion that if the South American market was to be opened up in the way proposed, Providence would get a share of the business. At present, transactions were made through accredited agents at New York, that being the quickest and easiest method, but if closer relations between the two countries were to be had, business might be more readily done by agents of the home company, with offices in South America. The Rhode Island Locomotive Works are doing an excellent business in the United States, and the prospects for future operations were very good, still, the corporation would make a bid for a good share of South American patronage, if that field were opened to American manufacturers. The American style of locomotives was preferred in the former country, and the fact that English locomotives were in more extensive use was due to the additional fact that the railroads are largely controlled by English capitalists. There are, however, a good many American locomotives in use in South America. The Rhode Island Locomotive Works had not, until this year, catered for that trade, but were now trying the field, having shipped four engines there this year—these machines representing three different patterns. All were of the meter gauge, or a little more than 3 feet, whereas the standard gauge in this country is 4 feet 8½ inches. Nearly all of the South American roads are of narrow gauge, yet the locomotive required for that country did not vary much in style or class from those used in the United States. While the English engines are lighter, the American are better adapted to the service required. Although the four locomotives from this company were sold through agents at New York, one of the company's own agents has but recently returned from a trip to South America, and he reports that their prospects for getting a fair share of business there was good. Engines sent on have to be shipped in parts and set up after they are delivered. A great deal of care has to be exercised in the packing, and at present two of the company's experts are in South America, having gone on about two months ago to erect and operate the engines delivered. In brief, Mr. Lythgoe favored the idea of commercial reciprocity, and thought that some of the benefits of South American trade would accrue to Providence.

William B. Sherman, secretary of the Corliss Steam Engine Company, said that he had faith in good results following the establishment of commercial reciprocity with both South America and Mexico. While the Corliss Company had but recently sought export trade, he believed that a very good field might be developed in these Southern countries. The company had this year received a second direct order for stationary engines from a Mexican house, and the order had already been filled. A shipment of engines had also been made to one of the largest silver mining companies in the world, the Huanchaca Company, of Bolivia. One of these engines was a 1000 horse-power triple expansion, and two of them were to be located 1400 feet above the sea. This Bolivian order was also a direct one, in that it was placed by the constructing engineer and the mechanical engineer of the Huanchaca Company, after these gentlemen had been in this country about a year, with headquarters at New York, for the express purpose of selecting and purchasing for the mines what best pleased them. These engines were sent in a sailing vessel, around Cape Horn, a long trip and one of considerable risk for so valuable a cargo. On Monday, September 1, three of the best men employed by the Corliss Company started for Bolivia, to set up the engines and see that they got into perfect working order. Mr. Sherman remarked that the company's relations with their foreign customers had been very pleasant and satisfactory, and that he felt sure that a reciprocity treaty with the South American States and with Mexico would be productive of much good; that the traffic would be profitable to this country, and that Providence might have a fair slice of the patronage.

T. W. Phillips, secretary of the Providence Steam Engine Company, favored the idea of reciprocity on general principles, but considered that, so far as South American trade was concerned, the trend would be toward something higher than steam engines. LEONIDAS.

PERSONALS.

Dr. Williams, of Burnham, Parry, Williams & Co., proprietors of the Baldwin Locomotive Works, Philadelphia, has recently returned from a trip around the world.

James L. White has severed his connection with the works at Roanoke, Va., to accept the position of mechanical engineer for Wharton McKnight, Anchor Foundry and Machine Works, Pittsburgh, Pa.

W. H. Doane, of Fay & Co., Cincinnati, has returned home after nearly a year's absence abroad.

James Dredge, editor of London *Engineering*, is expected to arrive at an early date.

Robert Mannesmann, one of the brothers who have become famous through their invention of tube rolling, is now in this country.

George Berger, of New Castle, Pa., has returned from Europe.

F. W. Wood, general manager of the plant of the Pennsylvania Steel Company, at Steelton, Pa., will remove to Baltimore next month, having found it necessary to be near Sparrows Point, where he is managing the erection of the new plant of the firm at that place.

Thomas Deegan will sever his connection with J. P. Witherow, to accept the management of the new Stirling Manufacturing Company, at New Portage, O.

Robert L. Whitehead, formerly of the Crozer Steel and Iron Works, Roanoke, Va., has been appointed chemist and furnace superintendent at the Virginia Nail and Iron Works, Remsens, Va.

Leo Stripplemann, general manager of the alkali works at Westeregeln, Germany, and one of the visiting engineers, has arrived.

OBITUARY.

WHEELER BEERS, who died in Bridgeport, Conn., September 1, in his 68th year, had been identified all his life with leading manufacturing establishments in that city—the Eagle Spring Company, the Ætna Spring and Axle Company, and the Coach Lace Company having been largely aided in their success by him.

JOHN WESTINGHOUSE, senior member of the Westinghouse Company, manufacturers of agricultural implements, of this city, and eldest brother of George Westinghouse, of air brake fame, died in Schenectady, September 3, aged 50.

NEW ENGLAND NOTES.

Brown & Mansur, of Houlton, Maine, are nearly ready to commence work in their new foundry and machine shop. Two large buildings and a brick boiler house have been erected. When the establishment is completed it will be one of the best equipped and most complete outfits for manufacturing stoves, plows and machinery in the State.

The Salem Car and Machine Company have just been organized at Salem, Va., by capitalists from New York, Boston, Maine and New Hampshire. The authorized capital is $500,000. Work on the new plant will begin as soon as the foundation details are completed. J. W. Allemong is president and W. U. B. Stinson, of Concord, N. H., vice-president.

The Springfield (Mass.) Foundry Company have recently started a new 80 horse-power engine in their works, and completed extensive improvements to the plant which were begun a year ago. Among the additions to the works are a three story brick machine shop, 116 x 41 feet, with a two story ell, 68 x 32 feet; a two story brick building, 80 x 33 feet; a two story addition to the iron foundry, 85 x 33 feet, besides a new cupola house, a clearing room, two core ovens and a new brass foundry.

The Machine Mfg. Company, recently organized for the purpose of manufacturing small machine tools, have leased the Bingham Steam Mill, at Orange, Mass., for five years, and will probably begin work during October.

The Rodney Hunt Machine Mfg. Company, of Orange, Mass., are so crowded with orders in their water wheel department that they are running 16 hours per day. The machine shop department is filled with workmen to its utmost capacity to meet the demand.

The Simonds Rolling Machine Company, of Fitchburg, Mass., are bringing out ball bearings for car axles, a test equipment of which for 25 cars has been ordered by the West End Street Railway, of Boston. In a test made on the Boston and Albany Railroad a registering dynamometer was used to indicate the force required to start a car when equipped with a common journal and with the ball bearing journal, and it is stated that 398 pounds pull was indicated with the former and only 90 pounds pull with the latter.

The Connecticut Motor Company, of Plantsville, Conn., had on exhibition at the recent Cape May Convention a ¼ horse-power motor which was a model of design and workmanship. This style is intended for use up to 3 horse-power, but on the larger sizes, for the development of 5 to 25 horse-power a different pillow block has been adopted.

C. C. Loring, of Boston, is trying to convince the Navy Department that its discrimination against Clapp & Griffiths' steel is unjust.

TRADE REPORT.

Chicago.

(*By Telegraph.*)

Office of *The Iron Age*, 59 Dearborn street, CHICAGO, September 10, 1890.

The financial stringency interferes to some extent with free purchases for future requirements, or, on the other hand, compels sellers to use greater caution in making contracts. It would be felt more severely if the volume of business was not so widely distributed. The demand coming from all classes of consumers causes continued buying from first hands to meet immediate necessities, and is strong enough to maintain values steadily. The one commodity which is an exception to this statement is Pig Iron.

Pig Iron.—Pig Iron is not in heavy demand at present, and buying is only spasmodic. Southern Charcoal Iron has been sold to some extent, and an inquiry for a round lot of mill Pig Iron is on the market, but otherwise the week has been a dull one, with even few car load orders. An appearance of weakness is again caused by Southern furnacemen cutting prices on low grades of Coke Iron. This is explained to cover only early deliveries, and is done to reduce stocks on hand. Furnacemen state that while sales have been light of late their shipments have never been so heavy. Buyers are taking their Iron very promptly, showing that they are as well employed as they expected to be. Quotations are as follows, cash, f.o.b. Chicago:

Lake Superior Charcoal	$20.00 @ $20.50
Local Coke Foundry, No. 1	17.00 @ 17.50
Local Coke Foundry, No. 2	16.00 @ 17.00
Local Coke Foundry, No. 3	15.50 @ 16.00
Bay View Scotch	18.00 @ ....
Am. Scoten (Strong Soft), No. 1	19.25 @ 20.25
Jackson County, Soft and Silvery, No. 1	18.25 @ 18.50
Southern Coke, No. 1	16.50 @ ....
Southern Coke, No. 2	16.00 @ ....
Southern Coke, No. 3	15.50 @ ....
Southern, No. 1, Soft	16.00 @ ....
Southern, No. 2, Soft	15.00 @ ....
Southern Gray Forge	15.00 @ ....
Southern Mottled	14.00 @ ....
Tennessee Charcoal, No. 1	19.00 @ ....
Missouri Charcoal, No. 1	18.50 @ ....
Alabama Car Wheel	22.50 @ 24.00

Bar Iron.—Bar Iron is again in good demand, especially among car builders, and there is some difficulty now in finding a mill willing to take further orders for prompt delivery. Sellers generally quote 1.90¢, half extras, Chicago, and those who are below that rate are not likely to long continue so.

Structural Iron.—The hope of a speedy end to the carpenters' strike was realized. All are employed again, and building operations are being actively pushed. Prices are unchanged, but very firm. The following quotations prevail on carload lots, f.o b.: Angles, 2.35¢ @ 2.40¢; Tees, 2.80¢ @ 2.90¢; Beams, 3.20¢; Universal Plates, 2.45¢ @ 2.55¢; Sheared Plates, Iron, 2.50¢ @ 2.60¢; Steel, 2.60¢ @ 2.70¢; Car Truck Channels, 2.60¢. Beams sell from store in small lots at 3.70¢, but Angles and Tees at 10¢ @ 15¢ ℔ 100 above carload prices.

Plates, &c.—Dealers report the demand greater than ever before. The mills are overwhelmed with orders, and some of them have advanced rates $2 ℔ ton. Prices here have not yet been changed, as the jobbing houses are well stocked. We quote: Nos. 10 to 14 Iron Sheets, 2.90¢ @ 3¢; do., Steel, 3¢ @ 3.25¢: Tank Iron, 2.65¢ @ 2.75¢; Steel, 2.85¢ @ 2.95¢; Shell Steel, 3.25¢; Flange Steel, 3.50¢; Fire Box Steel, 4.50¢; Rivets, 4¢ @ 4.25¢; Norway Rivets, 40 % off; Tubes, 1¼ inch, and less, 40 % off; 2 to 4½ inch, 50 % off; larger, 52½ % off.

Galvanized Iron.—An enormous business is being done in this line, and the mills are almost, without exception, far behind in deliveries. The building strikes have not had the slightest effect on sales. Stocks are much lighter than usual, and some warehouses are entirely bare of standard sizes. Prices are unchanged.

Sheet Iron.—Makers continue to quote 3.10¢ at mill for No. 27, although this may be slightly shaded in special cases. The mills, however, are crowded with orders and many cannot quote at all. Jobbers name 3.40¢ as regular price, but make concessions according to sales of other goods.

Merchant Steel.—The market is not quite as active as last week, but trade is by no means dull. Prices are higher. Tire Steel, 2.60¢ @ 2.75¢; Open Hearth Spring, 2.75¢ @ 3¢; Open Hearth Machinery, 2.60¢ @ 2.75¢; Bessemer Machinery, 2.30¢ @ 2.40¢; Crucible Spring, 3.50¢; Tool Steel, 7¢ and upward; Crucible Sheets, 7¢, 8¢ and 10¢.

Steel Rails and Fastenings.—The Rail trade is looking better. Several large sales were made since our last report, and more business is pending. Mills quote $33.50 for early delivery. Splice Bars are in strong demand, with Iron quoted 2¢ @ 2.10¢, and Steel 2.25¢. Track Bolts are very hard to get and Hexagon Nuts are quoted 3.05¢ @ 3.15¢. Spikes are quite scarce and worth $2.20 @ $2.25.

Old Rails and Car Wheels.—The market is very quiet. Nominal quotations are $26.50 @ $27 for Iron Rails, $18.50 @ $22 for Steel Rails, and $19.25 @ $19.50 for Car Wheels.

Scrap.—Forge and Mill Scrap are scarce and high. The railroads are sending out good lists this month, but all they offer will be easily absorbed. Borings and Turnings and Steel Scrap are neglected and quite weak. Selected Heavy Wrought for re-rolling is quoted at $23.50; No. 1 Railroad Wrought, $22 @ $22.50; No. 1 Forge, $21 @ $21.50; Car Axles, $26.50 $27; No. 1 Mill, $17; Pipes and Flues, 16; Cast Borings, $9.50; Axle Turnings, $14; Machinery Cast, $14.25; Horse Shoes, $19.50; Mixed Steel, $14.25; Coil Steel, $18; Leaf Steel, $19; Tire Steel, $20.

Pig Lead.—The past week has been a period of large inquiry and heavy sales. Eastern buyers have bought largely, as well as the local trade. Some 800 tons have been sold at 4.65¢ @ 4.70¢. Reports from the far West indicate a largely increased production in the near future.

Cleveland.

CLEVELAND, September 8, 1890.

Iron Ore.—The market has been fairly active during the past week, although the transactions reported have generally involved only small amounts. Bessemers averaging above 60 % in Iron are still in good favor at $5.50 @ $5.75, f.o.b. vessels lower lake ports. Probably 40,000 tons of Ore of about this grade have been sold during the past week at $5.65. Non-Bessemer Ores command slightly better prices as the market season closes. Non-Bessemer Hematites are selling at $4.25 @ $4.60, and with considerable freedom, too. The lake freight schedule is unchanged, $1 being the fixed charge for bringing a ton of Ore from anywhere near the head of Lake Superior. All available vessels are being eagerly taken at the figure named. The Escanaba rate remains at 85¢. From 10,000 to 17,000 tons of new Ore are being unloaded on the local docks every day, a deluge altogether too great for the railroad companies whose tracks extend to the furnaces to withstand. The season of navigation seems likely to close with a larger amount of Ore on the lower lake docks than ever before. Local dealers do not believe that more than a few thousand tons of desirable Ore remain unsold.

Pig Iron.—The situation remains unchanged in every particular. The future seems roseate and beautiful, and, indeed, little fault is found with the present, but there is little information to be obtained anywhere. The amount of Ore going into consumption is reported to be enormous. The confidence of all concerned in the early improvement in market values keeps prices very firm at the following figures:

Nos. 1 to 6 Lake Superior Charcoal	$20.00 @ $21.00
Nos. 1, 2 and 3 Bessemer, per ton	19.00 @ 19.30
No. 1 Strong Foundry, per ton	17.80 @ 18.30
No. 2 Strong Foundry, per ton	16.80 @ 17.30
No. 1 American Scotch, per ton	17.80 @ 18.30
No. 2 American Scotch, per ton	16.80 @ 17.30
No. 1 Soft Silvery, per ton	17.50 @ 18.50
Mahoning and Shenango Valley Neutral Mill Irons, per ton	15.30 @ 15.80
Mahoning and Shenango Valley Red Short Mills, per ton	15.80 @ 16.30

Scrap.—The market is only moderately active, although prices are firm enough. No. 1 Railroad Wrought $22 @ $22.50 is quoted. Old Iron Axles are worth $27.50 and Cast Scrap $15.50. Little has been done in other grades of Scrap and prices are uncertain and indefinite.

Manufactured Iron.—The market seems to possess both strength and firmness. Common Bar is quoted 1.80¢ @ 1.85¢, while Sheets are scarce and high.

Old Rails.—There is a small demand for Old Americans at $27 @ $27.50.

Bassett, Presley & Train, Elm and Hemlock streets, have issued in very convenient form a price list of Bar Iron, Nails, Plates, Rivets, Chains, Bolts, &c., with the lists of extras.

Cincinnati.

(*By Telegraph.*)

Office of *The Iron Age*, Fourth and Main Sts., CINCINNATI, September 9, 1890.

Pig Iron.—On some days during the past week the local market for Pig Iron has appeared to lack spirit, but upon other days orders have been heavy, and in the aggregate the volume of business has been considerable. Not less, and probably more, than 10,000 tons have been booked for present and future delivery during the first five days by local agents. Contracts for 1000 tons and over have been rare, but orders for 100 to 500 ton lots have indicated an awakening, and sales of carload lots have been numerous—not less than 60 cars having gone out on orders for prompt shipment during the week. Full prices have been obtained for all small lots, but early in the week some reduction was made on prices of special grades, of which the furnaces had an accumulation; the lower prices, however, brought about speedy sales and restored the market for round lots. From the large number of car lots and other small orders it is reasoned that buyers anticipate lower prices, but the avidity of buyers is well demonstrated by the rapid sales promoted by any decline in prices, which quickly restores the market, making more evident the large and ready consumption of Pig Metal. A noteworthy feature during the week has been the increased demand for Charcoal Iron, a number of sales of 100 to 200 tons having been reported, but in some instances slight concessions in price have been made because of active competition of such brands, as well as Coke Irons. Another point developed during the week is the larger consumption of No. 1 Foundry of Northern production. There has been a moderate movement of Ohio Softeners also. The orders taken recently embrace a wide

extent of territory. An active canvass of this immediate neighborhood shows a general state of industrial activity, but in some sections an indisposition to buy, except in a small way. Where negotiations are pending for round lots there is a strong desire to secure Iron for delivery extending through the first three or four months of next year, at prices now current. The furnaces meet the deliveries, but oppose the price. At the close there is a steady market and a fair consumptive trade without anxiety to buy or pressure to sell. Among the most important sales of the week are the following: All Southern Iron, cash at the furnaces; 2450 tons Gray Forge in lots of 1000 or 500 tons at $10.50 @ $10.60, and smaller lots at $10.75 ₱ ton; 550 tons No. 2 Soft, $11 @ $11.25; 1000 tons No. 1 Soft, $11.50 @ $11.75; 1000 tons No. 3 Foundry at $11 at $11.25; 750 tons Silvery at $11.50 @ $11.75, and 200 and 400 tons No. 1 Foundry at $12.50 ₱ ton. Sales of Charcoal Iron aggregate about 1000 tons in lots. The prices current are cash, f.o.b. Cincinnati, as follows:

Foundry.

Southern Coke, No. 1	$15.25 @ $15.75
Southern Coke, No. 2	14.25 @ 14.50
Southern Coke, No. 3	13.75 @ 14.00
Ohio Soft Stone Coal, No. 1	17.00 @ 17.50
Ohio Soft Stone Coal, No. 2	16.00 @ 16.50
Mahoning and Shenango Valley	17.50 @ 18.00
Hanging Rock Charcoal, No. 1	21.00 @ 22.00
Hanging Rock Charcoal, No. 2	19.50 @ 20.50
Tennessee and Alabama Charcoal, No. 1	18.00 @ 19.00
Tennessee and Alabama Charcoal, No. 2	18.50 @ 19.50

Forge.

Gray Forge	13.25 @ 13.50
Mottled Neutral Coke	13.00 @ 13.25

Car Wheel and Malleable Irons.

Southern Car Wheel	22.50 @ 23.25
Hanging Rock, Cold Blast	22.00 @ 22.50
Lake Superior Car Wheel and Malleable	21.00 @ 22.00

Philadelphia.

Office of *The Iron Age*, 220 South Fourth St., PHILADELPHIA, Pa., September 9, 1890.

Pig Iron.—The market for Pig Iron is not strong, by any means. Consumption keeps up remarkably, and is doubtless steadily increasing, but the supply of Pig Iron (prospectively, at all events) is well up, if not a little ahead of all possible requirements. For this reason—there is apparently no other—prices cannot be lifted out of the old rut, while at times there are indications of a settling toward a still lower level. During the past week a good many inquiries have been on the market from large buyers, and as several transactions have been closed on private terms, it is supposed that concessions of more or less importance were secured. There is a great deal of Iron taken at full quoted rates, but it is in small lots and in frequently renewed orders, those who buy for forward delivery insisting on some rebate from the ordinary quoted rates. In some instances, in which very desirable brands were quoted at $15.25 @ $15.50, delivered, for Gray Forge, buyers state they were able to do better, and while these particular brands were not secured, others were substituted, at a price which it is claimed made them more desirable. Hence there is reason to believe that a good deal of very fair Iron has been picked up at about $15, and from that down to $14.50 for less desirable qualities. Foundry grades are steady at prices recently quoted, say, $16.50 @ $17, delivered, for No. 2, and $18 @ $18.50 for No. 1, and from present appearances there is no over supply of good brands. Alabama Irons are rarely mentioned in this market, but Virginia makes seem to have secured a recognized standing, especially at points a little south and west of the Schuylkill and Lehigh furnaces. Central Pennsylvania is also sending Iron in this direction, quality being its strong feature rather than its low price. As a matter of fact, prices are about the same, although the sellers may gain 10¢ or 15¢, or sometimes lose that much in competing at some particular point; all depends on what freight they have to pay. Taking the market as a whole it may be said that a very heavy business is in sight; but with so large a production as we now have it will be very difficult to do more than maintain prices.

Bessemer Iron.—The market is dull and the feeling somewhat unsettled. There are some indications of a desire to place orders, but bids are at figures so far from what they ought to be (considering cost of production), that there is practically nothing doing. Sellers quote $19 at furnace, with an intimation that half a dollar less might be accepted for desirable orders, but offers of that kind are not to be had at the moment. Sales of several lots of "misfits" have been made at all sorts of prices—from $17.50 down, but the percentage of sulphur and phosphorus was very much against it for ordinary purposes. Special Bessemer is variously quoted, but there is little doubt that $20.50 @ $21.50 at furnace would secure a moderate amount of the very choicest brands on a firm offer.

Spiegel and Manganese.—A few small lots of the former have been sold at a trifle over $31, duty paid; but for large lots there is no demand at over $30 @ $30.50. Manganese is held at from $70 to $72 for 80 %, according to quantity and delivery.

Steel Rails.—Market very dull and prices somewhat easier than they have been. There is plenty of work on hand for the present, but there is some anxiety to secure a fair proportion of business for the winter months; hence orders of that character would probably be taken at concessions from the usual quoted rates. The demand for small and medium sized lots for early delivery is well maintained, and for that class of business $31 @ $31.50 at mills are firm quotations.

Steel Billets.—The market is a little unsettled, and prices are not as firm as they were a week ago. Offerings from Wheeling at a trifle less than $33 delivered has developed irregularity in prices, so that orders could probably be placed at from $32 @ $32.50 for Nail Slabs and $32.50 @ $32.75 for 4 x 4 Billets. Buyers are moving very cautiously, however, and with indications of more liberal offerings, are inclined to take small lots only until the market becomes more settled. Anything like sharp competition would easily lead to still lower figures than those above named.

Crop Ends.—With better supplies prices are a shade easier. No recent sales have been reported, but there are sellers of foreign at $23.50, duty paid, and of domestic at $22.50 @ $23, f.o.b. cars at mills.

Muck Bars.—Prices are easier, although very little business has been done recently. One small lot was taken at $29.75, delivered, with bids of $29.50 for larger lots. Holders are quoting $29.75 @ $30.25, at mills, but there is not much change of business unless at concessions from these figures.

Bar Iron.—Business in this department continues to improve. Mills are crowded with work, and while prices are only slightly dearer, the tendency is undoubtedly toward higher figures. Country mills are quoting 1.80¢, f.o.b. cars, and city mills 1.90¢, and even the very best class of orders would be hard to place at less than these figures. Prospects for the continuance of the demand are still very encouraging, and there is every reason to expect an unusually active business during the balance of the year.

Skelp Iron.—Prices have continued firm, and in some cases have shown further advances. Sales of Grooved have been made at 1.95¢, delivered, and Sheared at 2.20¢ @ 2.25¢, and these may now be considered fair average quotations. There is a good deal of inquiry yet, with bids for large lots of figures slightly below those already named.

Plates.—The demand is very heavy, and as a rule prices are firm with an advancing tendency. There are instances, however, in which orders at even inside prices have been shaded a trifle, while in others an advance is asked on the outside quotation. All depends on the amount of work on hand and the character of the order submitted. If it is something exactly suited to the early requirements of the mill, a comparatively low figure will be named, while if the specification or delivery is less convenient, price will be made in accordance. Covering both ends of the market, for lots delivered in consumers' yards, prices are about as follows:

	Iron.	Steel.
Ship Plates	2.25 @ 2.30¢	2.40 @ 2.50¢
Tank	2.30 @ 2.35¢	2.40 @ 2.50¢
Bridge Plate	2.30 @ 2.40¢	2.50 @ 2.60¢
Shell	2.45 @ 2.55¢	2.60 @ 2.70¢
Flange	3.10 @ 3.20¢	2.90 @ 3.00¢
Fire-Box	3.75¢	3.75 @ 4.25¢

Structural Material.—Business is very heavy, and mills engaged in this class of work are all crowded to their utmost capacity. Prices are therefore firm at the full rates quoted last week, viz: Angles, 2.20¢ @ 2.30¢, delivered; Sheared Plates at 2.40¢ @ 2 50¢, and from 10¢ to 20¢ more for Steel, according to requirements. Tees, 2.7¢ @ 2.8¢; Beams and Channels, 3.1¢ for either Iron or Steel.

Sheet Iron.—Business continues of the same satisfactory character as noted for some weeks past. Mills have all the work they can handle, and while prices are nominally unchanged, concessions even on large lots are less important, while for small lots prices are gradually creeping upward. Carload lots of best makes are quoted at about the following prices:

Best Refined, Nos. 14 to 20	3.00¢ @ 3.10¢
Best Refined, Nos. 21 to 24	3.20¢ @ 3.30¢
Best Refined, Nos. 25 to 26	3.40¢ @ 3.50¢
Best Refined, No. 27	3.50¢ @ 3.60¢
Best Refined, No. 28	3.60¢ @ 3.70¢
Common, ¼¢ less than the above.	
Best Soft Steel, Nos. 14 to 20	3¼¢ @ 2½¢
Best Soft Steel, Nos. 21 to 24	3⅝¢ @ 3¾¢
Best Soft Steel, Nos. 25 to 26	3¾¢ @ 3¼¢
Best Soft Steel, No. 27	4¢ @ 4¼¢
Best Bloom Sheets, 1-10¢ extra over the above prices.	
Best Bloom, Galvanized, discount	@ 60 %
Common, discount	60 @ 65 %

Old Rails.—There is nothing new in this department. Prices are firm, and $26 would be paid for prompt shipments from abroad, but there appears to be nothing for sale at that figure. American Rails at interior points sell in a small way at $26 @ $27, according to quantity and delivery.

Scrap Iron.—There is a good demand for choice Scrap at full prices, but medium and inferior qualities are hard to move, unless at concessions. The usual quotations are about as follows: No. 1 Wrought, $21.50 @ $22, Philadelphia, or for deliveries at mills in the interior, $22.50 @ $23; $16 @ $17 for best Machinery Scrap, $15 @ $15.50 for ordinary, $15.50 @ $16.50 for Wrought Turnings, $11 @ $11.50 for Cast Borings, $26 @ $28 for Old Fish Plates, and $17 @ $18 for Old Car Wheels

Wrought Iron Pipe.—Business is very active in this department, with the exception of an extra 2½ % on 2 to 4 inch Tubes. Discounts are same as last week, viz.: Butt-Welded Black, 47½ %; Butt-Welded Galvanized, 40 %; Lap-Welded Galvanized, 47½ %; Lap-Welded Black, 60 %; Boiler Tubes, 1¼ inches and smaller, 45 %;

Boiler Tubes, 2 to 4 inches, 52½ %; Boiler Tubes, 4½ inches and larger, 52½ %; Oil Well Casing, 50 %.

Chattanooga.

Office of *The Iron Age*, Carter and 9th Sts., CHATTANOOGA, September 8, 1890.

Pig Iron.—There seems to be very little in the present condition of the market to suggest any particular comment. Prices are a little off, but notwithstanding there is a brisk demand for No. 1—in fact, more than the stacks can promptly respond to—the prices on this grade remain very firm. In other brands the demand is good and allows of no piling up in the yards to any amount, but opportunities of the Northern furnaces lowering prices has caused a little falling off in the tone of the market. The Southern foundries are all running full and are melting large quantities of Iron, and from the fact that they have never been in the habit of buying for future deliveries, they are now considerably inconvenienced by not being able to get prompt shipments from the furnaces.

St. Louis.

OFFICE OF *The Iron Age*, 214 N. Sixth st., ST. LOUIS, September 8, 1890.

Pig Iron.—Business during the past week has been only moderately active. Inquiries, however, are increasing, and if concessions were made as demanded by consumers a large business would result. Furnacemen, however, are very firm in their views regarding prices, hence the inactivity. Local manufacturers are actively employed, and generally speaking are well enough supplied with Iron to enable them to be independent to a certain extent. The poorer grades of Iron are to be had at concessions, while No. 1 and No. 2 Southern Foundry command full prices. The only sale of moment during the week under review was a 600 ton lot of Gray Forge at $13.80, cash, f.o.b. cars East St. Louis. Quotations are as follows, cash, f.o.b. St. Louis:

Southern Coke, No. 1 Foundry,	$16.00 @ $16.25
Southern Coke, No. 2 Foundry,	15.00 @ 15.25
Southern Coke, No. 3 Foundry,	14.50 @ 14.75
Gray Forge,	14.00 @ 14.25
Southern Charcoal, No. 1 Foundry,	18.00 @ 18.50
Southern Charcoal, No. 2 Foundry,	17.00 @ 17.50
Missouri Charcoal, No. 1 Foundry,	17.00 @ 17.50
Missouri Charcoal, No. 2 Foundry,	16.25 @ 16.75
Ohio Softeners,	18.00 @ 19.00

Bar Iron.—The mills are well supplied with orders, and have considerable trouble in making shipments as promptly as required. Lots from store command 2¢ @ 2.10¢. Mill price is from 1.90¢ to 1.95¢.

Barb Wire.—A satisfactory trade is reported, and prices, as quoted herewith, are generally adhered to: Painted, 3.05¢; Galvanized, 3.65¢. Carload lots 10¢ ℔ cwt. less than above prices.

Wire Nails.—Notwithstanding the immense production the consumption of Wire Nails keeps up remarkably. Carload lots are quoted at 2.65¢, f.o.b. St. Louis. Less than carload lots, from 2.70¢ to 2.75¢.

Detroit.

WILLIAM F. JARVIS & Co., under date of September 8, 1890, report as follows: The past week, in the Iron trade, generally, and in Pig Iron particularly, has been uneventful, no transactions of any magnitude whatever having been closed. Certain large buyers have sought to place orders for Iron for next year's delivery at current rates, or perhaps a trifle under present quotations, and it is thought that they will succeed in their endeavor. There is no question but that the present market belongs to the buyers. This, particularly, will refer to Southern Foundry and Forge grades, but is not yet applicable to Lake Superior Charcoal, which remains in a normal condition as far as price is concerned. The large orders still unfilled at most of the furnaces place furnacemen of this region in a comparatively easy position. It is hoped the fall trade in Pig Iron will be large for all grades, and judging by the quantities on hand at various foundries, it is fair to suppose that it will be. The difficulty in obtaining Manufactured Iron is demonstrated by replies from nearly all of the mills, who are universally full of business. The same may be said concerning Structural material and Forgings. We repeat quotations on Pig Iron as follows:

Lake Superior Charcoal, all numbers,	$20.50 @ $21.00
Lake Superior Coke, Bessemer,	20 00 @ 20.50
Katahdin (Maine Charcoal),	24.00 @ 25.00
Lake Superior Coke Foundry, all ore,	19.25 @ 20.75
Southern No. 1,	17.00 @ 17.50
Southern Gray Forge,	15.25 @ 15.50
Jackson County (Ohio) Silvery,	19.00 @ 19.25

New York.

Office of *The Iron Age*, 66 and 68 Duane street, NEW YORK, September 10, 1890.

While Manufactured Iron in all its branches is steady under an unprecedented demand, a weakening tendency is developing in raw materials.

American Pig.—The market continues very quiet, and is disturbed only by some pressure to sell on the part of some Northern furnaces on foundry grades and on the part of Southern furnaces on lower grades. Consumers appear to incline to the opinion that they have nothing to lose and possibly something to gain by waiting. They point particularly to the fact that the next few months will bring into the market as sellers a number of new Virginia plants, who can only gain a foothold by cutting. We continue to quote $17 @ $18 for No. 1 and $16 @ $16.50 for No. 2 Foundry, good Northern brands, while Southern Irons are selling at $17 @ $17.25 for No. 1, $16 @ $16.25 for No. 2 and $14.75 @ $15.25 for No. 3. Southern Car Wheel Iron is quoted $20.50 @ $21 for Nos. 3, 4 and 5, and $19.50 @ $20 for Nos. 1 and 2, delivered.

Spiegeleisen and Ferromanganese.—There has been no business of any consequence, and we continue to quote nominally $30 @ $30.50 for German 20 % Spiegeleisen, and $70 @ $71 for Ferro, forward delivery.

Wire Rods.—There is a fair demand, but the market is quiet. We quote Foreign Rods, buyer taking risk of duty. $43.50 @ $44 for No. 6.

Billets.—Importers are asking more money, but are doing very little, small sales of small sizes of Billets having been made at $33.50, buyer taking risk of duty.

Steel Rails.—The market is in a peculiar position. It cannot be denied that there is some disappointment that the volume of fall and winter business is not greater at this time. Unusual secrecy is observed by sellers as to the negotiations which they are carrying on, or the sales which they have made. This has given rise to many rumors, all of them in the direction of announcing exceptionally low prices. These should not be credited, but it is true that some of the mills are eager for business, and, not knowing how low to go, some may be induced to cut too deep. The great mills of the country are not inclined to let an order go when they want it and they make special figures. As it is now, everybody seems to be at sea as to the prices which it is safe to name to secure business. For early delivery, moderate lots, we quote $30.50 @ $31.

Manufactured Iron and Steel.—Among the sales made during the week is one lot of 500 tons of Girders. We note also that the new Astor Hotel contract has been practically closed.

Old Rails.—A sale is reported of 500 tons of T's at $25.25, and some sellers claim that $25.50 is now a close price. Old Double Heads have been offered at $26. A lot of 600 tons of Old Steel Rails has been sold on line of road to consumer's mill at $21.

Track Material.—Spikes are held at $2.20 @ $2.25. Fish Plates continue 1.80¢ @ 1.90¢, and Bolts and Nuts, 2.95¢ @ 3.15¢, delivered.

Warrant Stocks.—The American Pig Iron Storage Warrant Company report as follows:

	Tons.
Stock in yard, September 3,	69,500
Put in yard seven days, ending September 10,	
Total,	69,500
Withdrawn seven days, ending September 10,	2,400
Net stock in yard, September 10,	67,100

Pittsburgh.

Office of *The Iron Age*, Hamilton Building, PITTSBURGH, September 9, 1890.

Pig Iron.—There has been no material change in the situation during the past week. We can report a continued steady consumptive demand, but there is an absence of anything like a "boom," and prices, while unchanged, continue offish. Consumers generally are buying freely, but it is mostly for immediate or nearby requirements. While we continue to quote Neutral Gray Forge at $15.25 @ $15.50, cash, the great proportion of the business is at the inside quotation. Consumers say they have no difficulty in getting all they want at $15.25. Bessemer Iron continues weak, with sales of some 6000 tons reported at $18.25 @ $18, cash; the latter is now regarded as the ruling price. However, there are those who regard Bessemer as a good investment at present prices. A considerably increased demand is looked for before long, and if this is realized, an advance is not improbable. Prices may be fairly quoted as follows:

Neutral Gray Forge,	$15.25 @ $15.50,	cash.
All Ore Mill,	16.00 @ 16.50,	"
White and Mottled,	14.50 @ 14.75,	"
No. 1 Foundry,	17.00 @ 17.50,	"
No. 2 Foundry,	16.00 @ 16.50,	"
No. 2 Charcoal Foundry,	21.50 @ 22.00,	"
Cold Blast Charcoal,	27.00 @ 30.00,	"
Bessemer Pig,	18.00 @ 18.25,	"

Coke Irons were said to have been sold at $16.25, cash, for Forge, delivered to city mills, and if correct, this would not yield the furnace more than $15 @ $15.10.

Muck Bar.—Good demand, and for immediate or nearby delivery prices are still tending upward; sales at $30 @ $30.50, cash, and it is intimated that $30.75 @ $31 may be realized before the close of the week.

Ferromanganese.—Sales of 80 % at $69.50 @ $70 ℔ ton at seabord and $72.50 @ $73, Pittsburgh. The inquiry is chiefly for small lots for immediate use. Large consumers are reported to be well supplied.

Manufactured Iron.—Not for several years have the Bar mills been so busy as at present and for some time past, and it bids fair to continue until well on to the close of the present year. The mills are all busy, and but few of them are in condition to take additional orders for immediate or even near by delivery. Prices remain unchanged. Bars, 1.85¢ @ 1.90¢; Plate and Tank, 2.20¢ @ 2.25¢; No. 24 Sheet, 2.85¢ @ 2.90¢; Skelp, 1.80¢ @ 1.85¢ for Grooved, and 2.10¢ @ 2.15¢ for Sheared, all 60 days, 2 % off for cash.

Nails.—Good demand for Wire Nails, and two or three factories here are well sold ahead. They are quoted, in carload lots, at $2.40 @ $2.45, 60 days, 2 % off for cash. But little business in Cut Nails, and but very few being made.

Structural Iron.—Continued activity. Mills all very busy and unable to keep up with their orders. Prices unchanged: Angles, 2.20¢ @ 2.25¢; Beams and Channels, 3.10¢; Tees, 2.80¢ @ 2.85¢; Steel Sheared Bridge Plates, 2.65¢ @ 2.70¢; Universal Mill Plates, Iron, 2.35¢; Refined Bars, 1.90¢ @ 2¢.

Steel Plates.—Activity continues; the Homestead Works of Carnegie, Phipps & Co. are making three heats of eight hours each per day, from which it is evident that this mill is being worked up to its utmost capacity. While others are not working so strong, they are all very busy. Prices are quoted as follows: Fire Box, 4.25¢ @ 4.75¢; Flange, 3.10¢ @ 3.20¢; Shell, 2.90¢; Tank, 2.55¢,

Merchant Steel.—Continued activity, but prices remain unchanged. Tool Steel ranges from 8¢ upward, as to quality and brand; Crucible Machinery Steel, 4½¢ @ 5¢; Open Hearth Steel, base sizes, 2½¢ @ 3¢; Bessemer Machinery Steel, 2.35¢ @ 2.40¢; Tire Steel, 2.50¢ @ 2.55¢ rates.

Wire Rods.—Less inquiry, but very few for sale, as manufacturers here are consuming about all they can make. The mill of Carnegie, Phipps & Co., after being stopped a couple of months for repairs, was only started up last week. The Braddock Company, since adding a nail factory to their plant, have very few Rods to sell. We never hear of Oliver Bros. as sellers of Rods, but frequently as buyers. Prices remain as last quoted, $44.50 @ $45, cash, on cars at makers' mill.

Billets and Slabs.—Billets may be quoted at $30 @ $30.50, cash, at makers' mill. Sales have been made at the inside quotation for future delivery. Small lots for immediate delivery command a fraction more than prices quoted. Billets are sympathizing with Bessemer Pig, both of which, some well informed authorities are inclined to think, have about reached hard pan. One of our brokers, on being interrogated in regard to the situation, responded that in his opinion buyers need not be afraid either of Billets or Bessemer Pig at present prices. We are advised of a sale of Nail Slabs at $30.25 on cars at Wheeling.

Wrought Iron Pipe.—The Pipe mills are all very busy and likely to be for some time to come, although new business usually commences to fall off this month. Mills are all behind their orders, and it will require some time for them to catch up. A company has recently organized to Pipe natural gas to Chicago, and this, with the Standard Oil Company laying a Pipe line for oil from the territory at the head waters of the Monongahela River to Baltimore, will afford some idea of the amount of Pipe wanted. Pricces remain unchanged as follows: Discounts Black Butt Weld 47½ %; on Galvanized ditto, 40 %; on Black Lap 60 %; on Galvanized ditto, 47½ %; Boiler Tubes—1¼-inch and smaller, 45 %; 2 inch and larger, 50 %; Casing, all sizes, 50 %. The next regular meeting of the Association takes place on October 8.

Old Rails—Continue in scant supply, and prices are still tending upward. Good straight lots may be quoted at $28, cash, for American Tees. Old Steel, in the absence of sales, may be quoted at $21.50 @ $22.50, for short and long pieces.

Railway Track Supplies.—There is an increasing demand, but prices remain unchanged. Spikes, $2.15, 30 days, on cars at works; Iron Splice Bars, $1.95 @ $2.05; Steel ditto, $2 @ $2.10; Iron Track Bolts, $2.85 with Square and $3 with Hexagon Nuts.

Steel Rails.—But little new business reported of late, but both of the mills are well sold up. We continue to quote at $31.50 @ $32.50, cash, at mill, according to character of order and delivery.

Connellsville Coke.—There is a continued good demand and a continued scarcity of cars reported. Prices unchanged.

(By Telegraph.)

Bessemer Pig Iron is now to be had without much trouble at $18, cash, and standard brands Forge at $15.25, cash; Muck Bars continue scarce and in demand, with sales at $30 @ $30.50, but it is expected that the demand will fall off soon. Sale of 500 tons American Tee Rails reported at $28, delivered at Youngstown, Ohio, and 200 tons No. 1, R. R. Wrought Scrap at $22.50 net ton, delivered at Youngstown.

Financial.

The strained condition of the money market bears upon the general business situation in all directions, but the volume of trade seems to be little affected, if a judgment can be formed from the large bulk of merchandise moving out from this center, gorging the streets with loaded vehicles, obstructing the sidewalks and pressing the lines of transportation, coastwise and rail. Although the Southern trade is rather backward, there is a vigorous demand from those sections producing the leading staples. A cotton crop estimated at 8,000,000 bales, the largest ever known, will alone contribute a few hundred million dollars to the channels of trade, and will soon make itself felt in the foreign exchanges. In ocean freights there is already some improvement and it is not probable that the Atlantic steamers will again, very soon, load with grain for Europe and return with the same cargo as ballast, as recently happened at Baltimore. Nevertheless, exports of grain are not what they should be, in face of the fact that hundreds of steamers are loading on the Black Sea with Russian wheat for England. In New York, dry goods jobbers are more busy than for many weeks. Transactions in August were uncommonly large and free from speculation. Prices of produce, which the Silver bill was to advance, continue to recede. Corn, wheat and cotton are all lower, the latter 1¢ ₱ lb compared with the corresponding date last year. The failure of Sawyer, Wallace & Co., one of the oldest and strongest houses on the Produce Exchange, for $1,000,000 or upward, caused radical changes in the price of several commodities, most notably, pork. An enormous business has been done in sugar on account of the strength in the English markets, which also has been turning buying orders to Cuba. The Government report respecting the corn producing States was favorable. On account of failure Kansas is changing from corn to wheat. The gross clearings of 56 cities for the week show an increase of 2.1 %. New York decreased 7.4 %.

The Stock Exchange markets were but slightly influenced by Secretary Windom's new circulars. It is argued that so long as the Treasury absorbs more than it disburses, the West and South meanwhile calling for more currency to move the crops, the efforts to release money are like pouring water in a sieve. The loan market was also affected by a further decline in silver bullion. On the appearance of the bank statement the market was more active at a decline. On Monday free selling of Rock Island and Chicago, Burlington and Quincy, and the fall in these unfavorably affected the other grangers, making the market irregular. On Tuesday the market was more active than for some days past, and the average of prices was a little higher. Sugar Trust was strongly manipulated on the news from Washington. Chicago Gas Trust declined on reports that the city of Chicago will commence a *quo warranto* suit against the company. Several Western roads are fighting the Interstate Commission and the uniform bill of lading.

Government bonds were quoted as follows:

U. S. 4½s, 1891, registered	104¾
U. S. 4½s, 1891, coupon	104¾
U. S. 4s, 1907, registered	124¼
U. S. 4s, 1907, coupon	125¼
U. S. currency 6s, 1895	114

In money there is little change, causing some disappointment, as Treasury disbursements were expected to bring an easier condition. Notwithstanding the purchase of bonds amounting to more than $30,000,000 during August, nearly the whole of the proceeds were again in the Treasury on September 1. Time loans were quoted at 6 % for 60 days to six months, and very little was done except in renewals. In a few cases very high rates were paid for money on time, and one transaction is noted where a loan for a year was made on good mixed collateral at 6 % and 5 % commission. Commercial paper was in better supply, but the demand was insignificant, and rates were nominally 6 %. Recent failures cause a closer scrutiny. The bank statement for the week showed a loss of $52,000 in cash and $864,450 in reserve, leaving the banks $1,401,125 below the limit of 25 % reserve to liabilities.

Foreign exchange was quiet, with nominal rates ½¢ lower, at 4.82½ @ 4.86.

The new circular of the Secretary of the Treasury, offering to pay one year's interest on the 4 % bonds went into effect on Wednesday. The cashier of the Sub-Treasury states that the interest will be paid on each bond presented at once, and that the only thing to be done besides handing out the money is to stamp the bonds interest paid for the year. The holders of 4½ % bonds do not seem to be in haste to collect the principal and interest on their securities, but the Treasury officials are confident that the full amount will be tendered before September 20. The year's interest thus to be prepaid will amount to nearly $23,500,000. The acting Treasurer says the records of his office show that the total issue of the new silver notes up to September 8 was $4,009,000. Of these there were $1,539,060 in the New York Sub-Treasury for current use, and the balance, $2,469,700, were presumably in circulation. The former would be used for bank balances, or they might be paid into the Treasury for customs or internal revenue taxes. Mr. Whelpley thought that a few of these notes might have been redeemed in gold, but there was no official evidence of that fact.

A Boston dispatch states that the Mexican Central Company have signed a contract with the Mexican Government, by which the company will receive $14,687,470 Mexican cash out of the proceeds of the new loan in payment of outstanding subventions due to June 13.

At last the Senate has concluded the consideration of the Tariff bill. The time when the bill is to take effect was fixed by the Senate as October 1, but an amendment was adopted providing that goods in bond deposited prior to August 1 might be withdrawn at any time before November 1 upon payment of duties under the old tariff.

Exports of merchandise from this port for the week were $4,500,100, and imports nearly $11,000,000, the latter an increase of

$3,205,500 over the previous week. Specie imports were $840,000, exports nominal, with gold near the importing rate.

Metal Market.

Copper.—The demand from consumers has continued light, but inquiries made the past few days regarding the situation indicate that surplus supplies are running down to a low point in some quarters, and a brisker demand within the next three or four weeks is likely to be realized. Several small outside lots of Lake Superior Ingot, probably 100,000 lb, all told, have been picked up the past week at 16¾¢ @ 16⅞¢. These purchases, it is believed, have absorbed about all the weak outside holdings. The mining companies are firm at 17¢ for either prompt or near future deliveries. Arizona Ingot remains at 15¼¢ @ 15½¢, and common casting brands are quoted at 14½¢ @ 14¾¢, with the market showing rather better tone.

Pig Tin.—Straights Tin is dearer by about ¼¢ ₱ lb at this writing than it was a week ago. Rather more than the average supply, it is estimated, has passed into consumers hands in both this and the English markets since the 1st inst., while shipments from the primary sources are understood to have been light. Competent authorities assert that careful investigation reveals a wide difference between the running count of stock and the actual holdings, and that, with a minimum consumption, a further reduction in supplies here, if not in England as well, will be made by the end of the month. The spot supply in importers' and dealers' hands is estimated at not over 800 tons, and the amount afloat, due to arrive this month, is believed to be less than 300 tons. Apart from effecting settlements through the agency of transferable notices, there has been little local movement in the speculative line, but the distribution into the channels of consumption has continued remarkably good. Sales were made to the extent of 50 tons at 22.20¢ for September delivery and 22¼¢ net was considered a close price for spot stock in round lots at the close, with 21.30¢ @ 21.40¢ quoted for jobbing quantities. Deliveries to and including November were not offered at less than 22.10¢ on Wednesday. The Singapore price is said to be up to £100, and spots and futures have been selling at practically the same figures in London the past few days, which prices have ruled £1 @ £1. 10/ below the Singapore value. On Wednesday spots sold at a premium over futures in the London market.

Pig Lead.—Purchases by consumers have been on a smaller scale the past week, but the market has continued to gradually harden, and supplies are offered with no greater freedom here or in the West. Small parcels have been placed at 4.90¢, and for the limited quantities now offering 4.95¢ upward is asked. Prices have advanced somewhat in the European markets, and local values are still a round fraction below the importing point.

Spelter.—The movement has been unimportant and the market is devoid of new or interesting features. Supplies are not offered with any pressure. For Western prime 5.50¢ @ 5.55¢ is still lower.

Antimony.—The market is rather weaker at 20¢ for Halletts, 22¢ for Cooksons and 20½¢ for LX brand.

Tin Plate.—Somewhat free arrivals, latterly of supplies purchased some time ago, have operated to bring about more willingness to sell, and this circumstance, in connection with tamer advices by cable from Europe, has unsettled values. Buyers have shown little disposition to operate, and the market is rather dull as well as easier. Quotations for large lines, on the spot, are as follows: Coke Tins—Penlan grade, IC, 14 x 20, $5.10; J. B. grade, do., $5.20; Siemens Steel, ——; Bessemer do., $5.15. Stamping Plates—Bessemer Steel, Coke finish, IC basis, $4.90; Siemens Steel, IC basis, $5; IX basis, $5.90. IC Charcoals—Calland grade, IX, $5.50; Melyn grade, $5.75; for each additional X add $1.50; Allaway grade, $5.15; Grange grade, $5.37½; for each additional X add $1. Charcoal Ternes—Worcester, 14 x 20, $5.25; 20 x 28, $10.50; M. F., 14 x 20, $7.25; do., 20 x 28, $14.50; Dean, 14 x 20, $4.60; do., 20 x 28, $9.50; D. R. D. grade, 14 x 20, $4.65; do., 20 x 28, $9.37½; Mansel, 14 x 20, $4.65; do., 20 x 28, $9.50; Alyn, 14 x 20, $4.75; do., 20 x 28, $9.75; Dyffryn, 14 x 20, ——; do., 20 x 28, ——; Wasters—S. T. P. grade, 14 x 20, $4.45; do., 20 x 28, $9; Abercarne grade, 14 x 20, $4.40; do., 20 x 28, $8.75.

New York Metal Exchange.

The following sales are reported:

THURSDAY, September 4.

10 tons Tin, spot..... 22.00¢

FRIDAY, September 5.

20 tons Tin, September..... 22.15¢
10 tons Tin, September..... 22.15¢
(Sellers' right to double.)

SATURDAY, September 6.

10 tons, September..... 22.15¢

Coal Market.

While there is claimed to be a better feeling in the trade since the last advance, it is nevertheless true that no Coal to mention was sold at August prices. As matters now stand a check in buying is natural if the trade stand firm, while consumers are reflecting on the situation. They will buy only when they must. The consequence will be, so it is reasoned by dealers, that a cold winter will bring very active trade and a lively opening in the spring. The companies claim to have been compelled to advance as prices were not remunerative. Pea and Buckwheat are scarce, as is usual when mining is curtailed. Broken Free White Ash and Chestnut are $3.75.

Reports repecting the Anthracite trade are contradictory, Philadelphia advices speaking of an active demand. In New York, while improvement is noted, the demand is disappointing. Nevertheless, some descriptions are well sold up, and fancy grades of Lehigh are in short supply for Egg, with no sales below the circular. Some of the smaller sizes, suited to steam purposes, are in excess at the lowest prices. The companies are endeavoring to hold up strictly to the circular, as follows: Stove, $4.15; Egg, $3.90; Chestnut, $3.75; Broken, $3.75.

Production for the week ending August 30 shows an excess of 118,000 tons compared with the previous week. The official statement is as follows:

	1890. Tons.	1889. Tons.
Wyoming.....	409,263	461,626
Lehigh.....	151,967	148,346
Schuylkill.....	260,214	255,473
Totals.....	821,444	865,145
From Jan 1.....	21,935,982	22,400,408

The Lehigh Valley Railroad Company have taken steps to utilize the vast accumulation of culm at their mines. Large screens have been erected which revolve in tanks of water; the fine dust is washed out, while fine coal of any size is retained, and is of considerable commercial value.

Bituminous Coal is more active and prices are firmer. Operators are busy with contract orders. Cumberland reports for the week 81,000 tons; Clearfield, 61,000; Beach Creek, 37,500; Pocahontas, 31,300. Total production for the week, 320,000 tons, and for the year, 11,918,000 tons, an increase of 2,106,000 tons compared with 1889. Pool prices are $3.25 f.o.b., $3.50 alongside in New York.

Imports.

Hardware, Machinery, &c.

American Copper Co., Mach'y, lots, 1
Boker, Hermann & Co., Mdse., cs., 17; Arms, cs., 31
Curley, J. & Bro., Cutlery, case, 1
Downs, Wm., Mach'y, case, 1
Dressler, Oscar & Co., Mach'y, cs., 42
Field, Alfred & Co., Mdse., cs., 25
Folsom H. & D. Arms Co., Arms, cs., 12
Hart, W. B., Mach'y, pgs., 2
Hartley & Graham, Mdse., cs., 14
Ismay, J. Bruce, Iron Fence Panels, 80
Kursheedt Mfg. Co., Mach'y, cs., 35
Rotterdam S. S. Co., Arms, cs., 23
Rusthal, A. de & Co., Nails, cs., 50
Schoverling, Daly & Gales, Mdse., cs., 27
Werlemann, H., Mdse, cs., 13
Wiebusch & Hilger, Hardware, cs., 13; Mdse., cs., 11
Young, E. L., Steel Shoes, 20; Steel Dies, 20
Order—Mach'y, pcs. and cs., 27; Hardware, cs., 12

British Iron and Metal Markets.

[*Special Cable Dispatch to The Iron Age.*]

LONDON, WEDNESDAY, September 10, 1890.

The market for Pig Iron warrants has become rather flat. Since the recent sharp advance in prices outside speculation has tapered off and some of the large holders have realized. At present the trading is chiefly in small parcels and by local operators. Closing prices Tuesday were 49/7 for Scotch, 47/2 for Cleveland and 57/ for Hematite. Business was done to-day at 56/6 for the latter, 46/6 for Cleveland and 49/6 for Scotch. Cleveland stocks have increased somewhat thus far this month. Total exports of Pig Iron from Great Britain in September were 101,000 tons, against 129,000 tons during the corresponding period last year.

Block Tin prices have steadily advanced and reached £98. 15/ under the influence of large demand for prompt and near delivery. Recent arrivals have fallen behind the consumptive requirements, and the decrease last month of 600 tons in the visible supply has been further enlarged.

Copper has been in fairly active demand and Merchant Bars have been sold up to £61. 10/. Prior to the advance a large quantity of old holdings was disposed of at about £60. Some speculators taking advantage of ruling prices are realizing, but fresh support comes forward. Smelters have filled their requirements in part by purchasing Boledo Copper. Included in late prominent transactions are 1700 tons American Matte and 600 tons Bars.

In the Tin Plate market there is a temporary lull. There is a fair trade demand and more or less inquiry on large blocks, but buyers' and sellers' views are wide apart and makers very firm. The stocks at British shipping ports aggregate 323,000 boxes, against 366,000 boxes at the corresponding period last year. Exports are officially reported as 272,000 boxes in August, 1890, against 290,000 in August, 1889.

Dealers report an increased demand for Old Iron Rails, chiefly from the American market, but no important quantities have been sold.

Scotch Pig Iron.—In makers' Iron there has been a fairly active business and prices have shown little change.

No. 1 Coltness,	f.o.b. Glasgow	.....	63 6
No. 1 Summerlee,	" "	.....	62/
No. 1 Gartsherrie,	" "	.....	61/
No. 1 Langloan,	" "	.....	63/6
No. 1 Carnbroe,	" "	.....	51/
No. 1 Shotts,	" at Leith	.....	63/
No. 1 Glengarnock,	" Ardrossan	.....	60/6
No. 1 Dalmellington,	" "	.....	54/
No. 1 Eglinton,	" "	.....	52/

Steamer freights, Glasgow to New York, 2/, nominal; Liverpool to New York, 7/6.

Cleveland Pig.—Prices have ruled somewhat irregular, but the movement has been fairly active. Makers quote 46/6 for No. 3 Middlesborough, f.o.b.

Bessemer Pig.—There is still a good trade passing, but prices are somewhat irregular. West Coast brands, Nos. 1, 2 and 3, 58/ @ 58/6, f.o.b. shipping port.

Spiegeleisen.—The demand keeps up well and prices remain firm. English 20 % quoted at 100/, f.o.b. shipping port.

Steel Rails.—A fairly good business has been done at unchanged prices. Heavy sections quoted at £5 and light sections £5. 15/ @ £6, f.o.b. at N. W. England shipping point.

Steel Blooms.—The demand fair and prices steady. Makers quote at £4.17/6 for 7 x 7, f.o.b. at N. W. England shipping point.

Steel Billets.—Only a moderate trade passing and prices without change. Bessemer, 2½ x 2½ inches, £5, f.o.b. at N. W. England shipping point.

Steel Slabs.—Demand fair and prices as before. Bessemer quoted at £5, f.o.b. at N. W. England shipping point.

Old Iron Rails.—Sales moderate, but inquiry fair and prices firm. Tees quoted at £3. 2/6 @ £3. 5/ and Double Heads £3. 5/ @ £3. 7/6, f.o.b.

Scrap Iron.—The market very quiet and prices unchanged. Heavy Wrought quoted at £2. 7/6, f.o.b.

Crop Ends.—There is little doing in these. Bessemer quoted at £2. 17/6 @ £3, f.o.b.

Tin Plate.—The demand rather quiet, but prices firmly held. We quote f.o.b. Liverpool:

IC Charcoal, Alloway grade	16/9 @ 17/0
IC Bessemer Steel, Coke finish	15/9 @ 16/0
IC Siemens " " "	16/0 @ 16/3
IC Coke, B. V. grade	15/6 @ 15/9
Charcoal Terne, Dean grade	14/9 @ 15/

Manufactured Iron.—A good trade is passing and prices remain very steady. We quote, f.o.b. Liverpool:

	£	s.	d.		£	s.	d.
Staff. Marked Bars				@	9	0	0
" Common "	7	2	6	@	7	5	0
Staff. Bl'k Sheet, singles	7	17	6	@	28	0	0
Welsh Bars (f.o.b. Wales)	6	7	6	@	6	10	0

Tin.—Prices somewhat irregular, but the undercurrent firm and demand good. Straits quoted at £98. 10/ @ £98. 12/6, spot, and £98. 10/ @ £98. 15/ for three months futures.

Copper.—The demand has continued active and the market strong. Merchant Bars quoted at £61, spot, and £61 three months futures. Best Selected, £67.

Lead.—More business doing and the market very firm. Quoted at £13. 7/6 @ £13. 10/ for Soft Spanish.

Spelter.—Demand continues good and prices are again a fraction higher. Quoted at £24. 10/ for Ordinary Silesian.

PROVIDENCE MISCELLANY.

D. J. Wiley, George H. Chollar and John E. Henson, members of the Diamond Machine Company, of this city, were in Norwood, R. I., one day last week, looking for real estate investments.

A Corliss engine of 3500 horse-power is being placed at the Homestead Steel Works, Pittsburgh, Pa. The cylinder is horizontal, 54 x 72 inches, and the fly wheel of which weighs 200,000 pounds, the whole engine weighing 500,000 pounds. This will be one of the largest stationary horizontal engines in the world.

Work looks very promising at the mill of the Herreshoff Mfg. Company, at Bristol, R. I. About 100 men are employed, and probably double that number will be employed shortly, as the company have advertised for carpenters and ship joiners.

As soon as the large belt arrives the big compound Corliss engine at the Lorraine Mills, Pawtucket, will be given a trial. The belt is 150 feet long and is the largest one ever made for a mill in New England. The compound engine will take the place of the one now in use, and the latter will run the electric light plant.

The following is a copy of a sworn statement of the Worcester Steel Works of August 26, 1890:

Assets.		Liabilities.	
Land and buildings	$410,000	Stock	$500,000
Machinery	290,000	Debts	585,868
Cash and debts rec'd.	144,654	Profit and loss	164,349
Merchandise	405,563		
Total	$1,250,217	Total	$1,250,217

Mr. George M. Rice owns the entire capital stock of the steel works. An effort was made to sell the company in London as long ago as last December. Potter, Lovell & Co., are said to have been carrying the concern for two years and to be its creditors in the sum of $300,000.

MAKING HEAVY MORTARS.

The 30 12-inch breech loading rifled mortars which the Builders' Iron Foundry, of this city, is under contract to manufacture for the United States Ordnance Department, are now entering upon another stage of their construction. Side by side on the floor of the workshop are 28 of the black iron bodies which have been successfully cast. There is nothing about their rough, bulky, tapering forms to suggest a perfect piece of ordnance capable of hustling pent up energy to deal death and destruction around an object 7 miles distant. They appear more than anything else to be heavy pieces of piping for underground work. In their present condition they bear as much relation to the finished mortar as the chrysalis does to the butterfly. Each of those cast iron bodies are to be tightly clasped by 13 steel hoops, then rebored, rifled and breech device fitted. At present the guns are undergoing the hooping process. The steel hoops or bands are procured in the rough from the Midvale Steel Company, of Nicetown, Pa. Formerly they were imported, but this company are now able to manufacture steel equal in quality to any that can be obtained from abroad. They are sent to these works about ⅛ inch over size, and are bored down by a boring machine having a tool made of musket steel. This portion of the work, like many others throughout the construction, calls for workmanship as delicate as that necessary in the making of a watch, for the United States Government allows a variation of only 0.003 inch, and Capt. A. H. Russell, the ordnance inspector, is on hand to gauge each fitting as it is turned out. These 13 hoops are put on in two layers. Those nearest the body of the mortar are 31⅛ inches inside diameter and 2⅝ inches thick. The second layer is 36¼ inches inside diameter and 2¾ inches thick, with the exception of trunnion hoop, which is 3¼ inches thick. They are of various lengths, and weigh on the average 1000 pounds each.

When the mortar body is ready for these hoops it is placed on a large iron truck capable of bearing a burden of 25 tons, on which it is held in a horizontal position. The car is then run on iron tracks to the hooping department, where are the heating furnace, hoists, trolleys and sprinkling apparatus. The hoops are then shrunk on the body. Under the influence of heat the hoops expand so that they can be easily placed on the body. Cooling streams of water are then played on the heated iron, causing it to shrink to its normal size. At the Builders' Iron Foundry these hoops are heated by gas and the apparatus used is both novel and convenient. A sheet iron lined furnace with a cast iron bottom is sunk beneath the level of the floor. Inside of this furnace 36 vertical iron pipes are placed in a circle, each containing four horizontal nozzles, through which air and gas mixed in about the proportions of three to one are forced. Owing to variations in the size of the hoops these burners are constructed for easy and quick adjustments. The flames play directly against the hoop, both inside and out, and heat it to about 500° F., or to a point where a certain minimum gauge will enter, but not far enough beyond to admit another 0.015 inch larger, the total expansion being 0.06 inch. Over the furnace is a cover of sheet iron, which can be readily removed at any time during the heating, to allow of the expansion being gauged without the withdrawal of the hoop. In this respect the gas furnace is a decided improvement over the less modern mode of running the hoop in and out of a charcoal furnace on a truck.

Half an hour generally suffices to bring the hoop to the proper temperature, which gives it a straw colored appearance. It is then hoisted from the furnace in a vertical position, and by means of an overhead trolley track it is shoved along and slipped over the gun in its proper place. Instantly a force of 100 tons, obtained by a hooping press, is exerted to make a tight joint between it and one immediately in front. This press consists of two screws pulling on a heavy iron collar directly behind the hoop. The forward ends of these screws pass through nuts on the ends of an equalizing beam whose fulcrum bears against the stopper that closes the muzzle. The nuts are fitted with ball bearings, which enable the required pressure to be obtained with two men pressing on a 6 foot lever. The press is so constructed that equal pressure is obtained on either side by the operation of one lever only.

The pressure is brought to bear much more quickly than it takes to describe, and immediately after jets of cold water are allowed to play on the forward portion of the hoop, which soon begins to contract sufficient to grip the body, the jets of water being moved slowly backward, until the entire hoop is cool. At the same time a cool stream of water is kept continually running through the bore of the gun. The body when equipped with the hoops is 129 inches long and 41¾ inches in diameter. The hoop imprisoned body has again to be bored, for the intense shrinkage affects the diameter of the first bore. Then comes the rifling, which is a most difficult piece of work, requiring the greatest care, for a slight mishap will spoil the whole of the previous work. It is expected that the first of these mortars will be completed with breech fixtures in about one month. The construction of the guns is carried on under the supervision of Mr. A. A. Fuller, and the machinery has been designed by Mr. F. M. Connett. Both of these young men are graduates of Stevens' Institution, of Hoboken, N. J.

LEONIDAS.

VIRGINIA IRON NOTES.

The Glade Mountain iron property, consisting of 1000 acres, in the vicinity of Rural Retreat, Wythe County, has been purchased by Moore & Hibbert, of Staunton, who are representing a syndicate of Northern and Western capitalists; $35,000 was the amount of the purchase money. The iron is brown hematite, of which three veins have been found that run uninterruptedly the distance of four miles. It is understood that the parties for whom this purchase was made contemplate extensive developments in that locality.

At Basic City the Humbert Nut Lock Company have been organized, with $10,000 capital stock, for the purpose of manufacturing nut locks. T. S. Doyle, of Staunton, is president; J. S. Christian, of Roanoke, vice-president, and Taylor Bissell, of Staunton, is secretary.

The C. P. McWane Plow and Foundry Company, of Wytheville, have contracted to move their foundry and plow works to Graham, where the Graham Land and Improvement Company have offered them flattering inducements.

A. K. Rarig, of Columbus, Ohio, will establish boiler and machine shops at Buena Vista. The plans and specifications call for a foundry department 125 x 200 feet in dimensions, a pattern room 50 x 200 feet, a machine shop 125 x 300 feet, a boiler room 125 x 200 feet, a blacksmith room 50 x 100 feet and an engine room 40 x 70 feet.

The capital stock of the new steel company now organizing at Buena Vista has been increased to $750,000.

A company is organizing at Glasgow, with $100,000 capital stock, to establish a stove works. The leading incorporators are J. A. Whitman, of Columbus, Ohio; A. C. and W. S. Whitman, of Ironton.

At Farmville the Collins Automatic Car Coupler Company have been recently organized to manufacture the Collins Automatic Coupler. W. G. Dunnington is president and J. R. Martin, secretary.

HARDWARE.

Condition of Trade.

The satisfactory condition of things which has now prevailed for several weeks still continues and a good trade is doing, with gratifying prospects for business during the next month or two. Most of the jobbing points report an exceptionally good trade, and manufacturers in most lines are full of orders. Business in the South is referred to as especially good, with the expectation of continued active business owing to the excellent crops and general prosperity. Prices are without material change and in certain lines are characterized by a decidedly firm tone.

Chicago.

(By Telegraph.)

Hardware—Jobbers continue to report an increased demand for all kinds of seasonable goods. A little uncertainty is indicated in some directions on account of the very heavy volume of business done in July and August, which causes some fear that the factories will pile up goods in the fall months, causing another congestion like that shown at the close of last year. Manufacturers' agents, in a position to know the condition of affairs, scout this idea. They say that the factories are now so far behind their orders that it would be an advantage to them to have a cessation of new business for 60 days, if not longer. That would give them about time to catch up and make prompt deliveries. The tightness in the money market is effecting purchases to some extent, as those who would buy for future requirements are restrained by the fear that they might not be able to get the money needed when the time for payment comes around. In every other particular the market is in excellent condition, and prospects are bright for its continuance.

Nails.—Jobbers seem to have a very good demand for Cut Steel and Wire Nails, and maintain their quotations at $2.05 for Cut and $2.65 for Wire, with 5¢ off for carloads. Manufacturers' agents report an increasing demand for Wire Nails and the condition of business very much better in that line than it was two weeks since. Prices are very firm. Cut Steel Nails are slightly weak and some difference of opinion prevails among mill representatives as to the ruling price; $1.85 Wheeling is the normal rate, but this is departed from according to circumstances. Several elements are now effecting the price for Cut Steel Nails, one is the continued inroads of Wire Nails on the Cut Nail trade, and another is the difference made on brands. The name of a Nail appears to have the power to advance or reduce it from 5¢ to 15¢ as compared with competing brands. Business is a little stronger in Cut Nails than a short time since, but is not yet as active as it should be.

Barb Wire.—Manufacturers' agents report a good condition of trade, with a fair volume of orders coming in from all parts of this territory. Jobbers are having a good trade also, and maintain quotations unchanged at $2.90 for Pointed and $3.50 for Galvanized.

Cut Nails.

We hear no reports of concessions on Iron Cut Nails below our quotations, the stock of a mill in Eastern Pennsylvania which failed some time since being apparently disposed of. We quote for Iron Cut Nails $1.75 to $1.80, in carload lots on dock. For Steel Nails, $1.90 to $1.95 is asked. The freight on Steel Nails from Wheeling has been advanced 3 cents, making it 28 cents per keg.

Wire Nails.

The market continues steady and strong, with a good demand. Quotations are $2.45 to $2.50 for carload lots at mill, but these figures are shaded in some instances. The goods are selling from store in small lots at $2.70 to $2.75.

Barb Wire.

Quotations are on a basis of 3.35 cents for Four-Point Galvanized in round lots at mill, or 2.75 cents for Painted. The market is characterized as fairly active, but prices are comparatively close owing to the competition between manufacturers.

Miscellaneous Prices.

The demand for Apple Parers is comparatively light, and it is anticipated that the sale of this line of goods will be of smaller volume than usual on account of the generally light apple crop. Prices are not materially different from last year, but are somewhat lower.

Strap and T Hinges and Wrought Butts continue in an unsatisfactory condition and low prices are still ruling. Within the last week or two a good many orders have been placed, buyers recognizing the fact that quotations are not likely to go much lower. In the former line there is a slight reaction from the extreme prices which were made by some manufacturers, but this can scarcely be regarded as an advance in the goods. A great many orders have been booked and manufacturers are consequently less eager to secure others. It is to be observed that some large and careful buyers placed their orders comparatively early in the season and before the development of the lowest prices. The condition of things in Wrought Butts is not materially different from that in Strap and T Hinges, the prices being low and somewhat uneven.

There has been no improvement in the Tackle Block market and very low prices are ruling. The competition is very active, and there is considerable difference in the range of quotations made by the more conservative manufacturers and those who are most aggressive in their efforts to secure business. The presence in the market of comparatively recent competition has something to do with the present condition of things, but some of the older manufacturers are not to be outdone in the concessions made to induce orders.

Thomas Loughlin & Son, Portland, Maine, are about issuing to the trade the following circular:

The market for Tackle Blocks remains in a demoralized condition, with no immediate signs of improvement. Manufacturers are still satisfied to sell without regard to cost, and shrewd buyers are making prices for them. Those who bought freely when prices broke, now find lower quotations and are buying "from hand to mouth." For the next 30 days there will be no advance in prices.

A meeting of the manufacturers of Mechanical Rubber Goods was held in this city last week, when action was taken confirming the advance of 10 per cent. which was made at the last meeting. This was done on account of the continued high prices of crude Rubber, which has advanced about 5 per cent. during the past few weeks. The increasing uses to which Rubber is being put, and especially in insulating electric wires, is the cause of a materially increased demand, which causes something of a scarcity in the market. In this condition of things Rubber Hose, Belting and Packings are decidedly firm.

There has been no change in the price of Manila Rope but a decline of about 1½ cents has occurred in Sisal. Within the past year New Zealand Rope has been coming into increased prominence, and is referred to as possessing some advantages over Sisal, while it is sold at a somewhat lower price. The following are the present quotations of the manufacturers on these different lines, the prices given being subject to a discount of 1½ per cent. for cash in 10 days:

	Per pound.
Manila, ⅛ inch and larger	15 ¢
Manila, ⅜ inch	15½¢
Manila, ½ and 5-16 inch	18¾¢
Manila, Tarred Rope	14½¢
Manila, Hay Rope	15 ¢
Sisal, ⅛ inch and larger	10½¢
Sisal, ⅜ inch	11 ¢
Sisal, ½ and 5-16 inch	11¼¢
Sisal, Hay Rope	10½¢
Sisal, Tarred Rope	10 ¢
Sisal, Medium Lathe Yarn	9½¢
New Zealand, ⅛ inch and larger	9¼¢
New Zealand, ⅜ inch	9¾¢
New Zealand, ½ and 5-16 inch	10 ¢
New Zealand, Hay Rope	9¼¢
New Zealand, Tarred Rope	8¾¢

Among the reasons for the decline in Sisal is the fact that it has been offered by manufacturers outside of the combination at prices lower than those lately ruling, while at the same time there has been some apprehension that it might be imported owing to the high prices ruling here.

The advance in freights, which took place September 1, has the effect of slightly increasing the cost of heavy goods.

The following are the quotations made by Silver & Co., 56 Warren street, New York, on their line of Specialties and Housefurnishing Goods:

	Per dozen.
Glass Egg Beaters	$5.50
Egg Poachers, 6 Ring	4.00
Egg Poachers, 3 Ring	2.00
Egg Timers	2.00
Potato Mashers, and F. P.	2.75
Upright Mashers	7.00
Lemon Squeezers	0.75
Silver Spirit Stoves	4.70
Queen Spirit Stoves	7.00
Sir Humphrey Davy Toasters	2.25

Union Steel Works, Louisville, Ky., issue a price-list which gives, without illustrations, the list prices of Boys' Axes, Bench Axes, Carpenters' Adzes, Grub Hoes, Hatchets and Mattocks, a line of goods which they are putting on the market, and on which the fact that they are not under the control of the consolidated interests enables them to offer inducements in prices.

Hermann Boker & Co., 101 and 103 Duane street, New York, announce under date September 1, 1890, that owing to the adoption of the so-called Administrative bill, which went into effect on August 1 last, advancing the goods from 3 to 7½ per cent., and the expected passage of the McKinley Tariff bill, they are compelled to make a general advance on most of their imported goods, as follows :

John Wilson's Butcher Knives and Steels, &c., about	10 %
Pocket Cutlery, Razors, Scissors and Carvers, about	7½ to 20 %
Hardware, about	5 to 10 %
Guns, about	10 to 20 %

The above advances, it will be understood, are subject to change without notice. They also state that, as soon as possible after the passage of the McKinley tariff bill, they will rearrange their prices, which in most instances will exceed the above comparatively moderate advance.

Looking Forward a Month or Two.

A large number of the fall circular price-lists, from wholesale houses, under dates of August or September of this year, make similar announcements in regard to the prospects for fall trade ; *i. e.*, that season goods of all classes are likely to be higher in the near future, and that the outlook is for a larger fall business than usual. While it may be hoped that all these flattering prospects will be realized in the largest degree, a word of caution may not be amiss to those who are apt to be over sanguine and inclined to buy very much more largely than in other years. It is natural to suppose that business, from legitimate causes, will increase each year; and by comparing the amount of stock bought in any line last year, with the quantity bought the year before, and knowing how much has been carried over from last season, a basis for this year's purchases can be formed. It is better to lose a few sales late in the season, or to supply such wants by express, than to carry over a quantity of goods. If indications late in the season are that a considerable stock of season goods are likely to be left on hand, judicious advertising of reduced price or personal solicitation will catch that class of customers who would wait till next year if some inducements were not offered.

It is the practice in cities, among dry good clothier and gents' furnishing goods establishments, as well as some other lines, to dress their show windows in the most attractive way with goods to be closed out, and mark the articles, reduced from so much to so much, often showing a cut from one-third to one-half of the former selling price. Some system of this kind, under like circumstances, might be of advantage to the Hardware and Stove men. Now that Sheet Iron, Elbows, Stove Boards, Coal Hods and like goods are being bought, or are coming in, there is no better time to arrange for the convenient and speedy handling of them in the busy season. The first cold snap brings hurried inquiries for Stoves, Pipe, Elbows, Dampers, T-Joints and the rest of the Stove paraphernalia. Every one wants Stoves set up at once, whether they be new ones or those stored, or the ones that have stood in the corner of the room all summer. They want polishing done, stoves cleaned and new mica put in. Many want to borrow stove trucks or stove carriers, much to the Hardwareman's inconvenience. Now is the time to prepare for this rush, for it is sure to come.

It is not uncommon on a frosty October morning to see in a Hardware store two or three boxes of stove boards standing against cook stoves, the covers knocked off and lying on the floor with the points of the nails up; a bundle of elbows scattered over another cook stove with the wire that held them in just the shape to cause the most trouble; a bundle of coal hods toppled over near the front door, the wire that bound them together broken on one side and three or four dents in the half-dozen hods, and a corresponding amount of japan knocked off; no stove pipe made up in the rack; in fact, confusion reigning supreme. To such confusion add an incompetent blacking corps; a lack of polish; pliers, screw drivers and stove pipe wire left somewhere, and you have a condition of things not conducive to good temper. There is no reason why arrangements cannot be made to avoid this confusion. Stove boards can be opened and put in a rack, elbows undone and put in convenient form for handling, coal hods unwired and dents taken out, stove pipe made up, including some half joints and taper joints; also dampers on hand, including a few 5 and 7 inch for emergencies. It is often the case that some sample stoves have not been polished and put on the floor. The man who has his samples ready early is going to catch the largest trade. Customers do not want to purchase a stove from a sample in a knocked down condition. They cannot imagine how it will look when set up as a stove man, perhaps, can. The rule to have heating stoves on the floor by September 1 is a good one. Many begin to inquire for stoves soon after that time, and the dealers who are prepared secure orders for later delivery.

American Axe and Tool Company.

The American Axe and Tool Company have recently been making an effort to control the Scythe market, but this attempt has been unsuccessful and the project has been abandoned. There was some question on their part as to the advisability of extending their field and some unexpected obstacles were found to stand in the way of the scheme. This, together with a growing appreciation of the magnitude of their enterprise in keeping control of the Axe market, led to the abandonment of the project in regard to Scythes. This line of goods accordingly remains in open market. In this connection, the fact that the American Axe and Tool Company have failed to purchase the plant of the Dunn Edge Tool Company, Oakland, Maine, in accordance with an understanding which had been reached, is regarded as having peculiar significance. According to advices which we have received, soon after the organization of the American Axe and Tool Company negotiations were entered into with the Dunn Edge Tool Company for the purchase of their factory, in which both Axes and Scythes are manufactured, and the owners considered it a settled thing that the entire property would be taken by the company upon the terms agreed to, it being understood that the consummation of the sale and the transfer of papers was to be made August 1, and that after that date the Dunn Edge Tool Company as manufacturers was no longer to exist. In the meantime the Axe consolidation, finding that it would not be feasible to control the manufacture of Scythes, are represented as seeking some pretext by which they could avoid the carrying out of their contract in regard to the purchase of the Dunn plant. This pretext, according to uncontradicted reports from Oakland, was found in the inability of the company to show a clear title to a very small plot of ground included in the bargain, but in no way connected with the plant. It is also stated that the loss to the Dunn Edge Tool Company by the interruption to their business by the negotiations thus unfortunately terminated has been serious, and will be made the ground for litigation.

The matter is, however, of more general importance from its bearing upon the question as to the ability of the American Axe and Tool Company to control the market. It is generally conceded that their attempt to control Scythes was unwise, and that even if in it they had been at the outset successful they would soon have encountered serious difficulties; while, failing in the attempt, there has been for them a certain loss of prestige, especially in view of their non-purchase of the Dunn plant in accordance with their understanding with its owners and their own announcements made in regard to it. At the same time, the fact that the Dunn Edge Tool Company will be in the market as manufacturers of Axes will be a thorn in the side of the consolidated interests. This competition, together with the constantly developing manufacture of outside goods can scarcely fail to be more or less seriously felt by the American Axe and Tool Company. These facts, together with rumors in regard to difficulties which they have encountered and the limited demand for goods under which some of the manufacturers are disposed to be impatient, with other indications of a weakening in the company's control of the Axe market, suggest in the minds of shrewd Hardwaremen the question as to the future course of things in the company's affairs.

It is, however, to be borne in mind that the American Axe and Tool Company is a very strong concern, and at present in almost absolute control of the Axe market, and that with its great facilities and the advantages possessed by it, it is likely to retain its control for some time to come. It is, however, a question whether its present prices will be very long maintained, as there is a growing probability that they may consider it advisable to reduce them in view of dissatisfaction among the trade, and the offering of outside goods at lower prices.

Items.

William K. Ross, 33 Chambers street, New York, has been appointed by the William Wilcox Mfg. Company, of Middletown, Conn , as their salesman. He will be pleased at all times to quote prices for the Padlocks and Hames manufactured by that company, illustrations of which goods are shown in his advertisement on page 86 of this issue.

The eighteenth annual Interstate Exposition at Chicago opened in the exposition building, on the Lake front, on the 3d inst., and will remain open until October 18. It will, as usual, contain an interesting mechanical display, and efforts have been made by the management to surpass all previous achievements.

Thorsen & Cassady, 60 and 62 Wabash avenue, Chicago, have had an unpleasant experience for a new firm. Last spring they opened a wholesale house for the sale of Guns, Cutlery and Sporting Goods. Not long after they began to miss articles from their stock. Detectives were employed, who succeeded in fastening the crime on one of their clerks, who was arrested last week and confessed. He had three confederates, for whom he opened the store at night. All were captured, and many of the stolen articles were recovered, having been concealed at various points until an opportunity should offer to dispose of them.

The Evansville *Courier*, Evansville, Ind., of August 18, 1890, is a 12 page edition, and contains over 50 illustrations of business and public buildings, churches, school houses, &c. We are gratified at the apparent prosperity that the Hardware and Stove trades are enjoying, as described in this issue.

Osborn & Alexander, San Francisco, Cal., have recently moved from their old quarters, opposite the Palace Hotel, where they have been located for the last 18 years, to the corner of Market and Fremont streets. This corner is known to the trade as the old Treadwell corner, the present occupants having a frontage of 34 feet on Market street, and 134 feet on Fremont, with 10,000 square feet of floor surface.

The Matchless Metal Polish Company, 88 Market street, Chicago, recently received, through the Department of State at Washington, the bronze medal and certificate of award for the best metal polish exhibited at the Centennial International Exhibition held at Melbourne in 1888. On the obverse is a likeness of Her Majesty Queen Victoria, and on the reverse side is a wreath composed of the British oak and the Australian wattle. The two ends of the wreath are bound together at the stem by a true lover's knot. In the center is the motto, *Artibus Dignis Honor Insignis*, and the five stars of the Southern Cross. The distinction was won in competition with metal polishes from France, Germany, England and other countries.

J. C. McCarty & Co., 97 Chambers street, New York, have been appointed sales agents of Lewis & Babcock Mfg. Company, manufacturers of Hoes, Forks, Rakes, &c., Nashville, Tenn., and Utica, N. Y., and will be prepared at all times to name their best prices. They will still continue to represent the Auburn Mfg. Company, Auburn, N. Y., for the sale of their Scythes and other edge goods.

C. F. Guyon Company, 99 Reade street, New York, have been appointed agents of the Blackstone File Company, Pawtucket, R. I. They advise us that this line of Files is offered in competition with the best goods in the market, and they are warranted in every respect as exceptionally high grade. The company are also agents for the Crescent Coat and Hat Hooks, which are made of wire and are described as possessing special advantages.

J. Chatillon & Sons, New York, have received official notice of a certificate of award of the first order of merit and a bronze medal granted them for spring balances by the International Centennial Exhibition, Melbourne, 1888.

Charles S. Hubbard, of Hubbard & Co., Axe and Shovel manufacturers, of Pittsburgh, and also of the American Axe and Tool Company, will sever his connection with those concerns on October 1 next. At that date he will assume the position of secretary of the H. M. Myers Company, of Beaver Falls, Pa., manufacturers of the same class of goods. This company was recently organized with a capital stock of $150,000 to succeed the firm of H. M. Myers & Co., Limited. The officers are as follows: H. M. Myers, president; C. H. Myers, vice-president; C. S. Hubbard, secretary, and F. M. Wheaton, treasurer.

Stevens, Woodman & Lunt have purchased the old established silver platedware business of Stevens & Smart, Portland, Maine. In their announcement to the trade they say: "It is our purpose to keep up the standard of the goods made by the old firm and to increase and extend the business as the market demands." We are also advised that the capacity of the works has been greatly increased and that they are now prepared to turn out Britannia Silver and Nickel Platedware in great variety.

H. A. Williams Mfg. Company, Boston, Mass., manufacturers of Steel, Brass, Copper and Tin Oilers, have opened a branch office at 55 Fulton street, corner of Cliff street, New York, in charge of D. A. Goodrich. The company announce that they are preparing to bring out several novelties in Steel Oil Cans.

Hickscox Bros., 110 Liberty street, New York, have been appointed sales agents in New York City for Stickney Oil Burner Company, Portland, Maine.

The *Morning Oregonian*, Portland, Ore., referring recently in a very pleasant way to the mention made in *The Iron Age* of Foster & Robertson's new catalogue, adds that this is the first Hardware catalogue gotten out in the Pacific Northwest.

C. M. Mumford, Springfield, Mass., manufacturer of the Mumford Extension Measure, alludes to it as being particularly useful to carpenters, wagon makers, trunk manufacturers, boat builders, glaziers, carpet and furniture dealers, screen makers, shade and upholstery people—in fact, any who have measuring to do. These are made in three sizes, *i. e.*, 18 inches long, opening to 34 inches; 24 inches, opening to 46 inches; 36 inches, opening to 70 inches. Attention is directed to his advertisement on page 74.

C. Sidney Shepard & Co., 23 and 25 Randolph street, Chicago, Ill., issue a fall circular of seasonable and other goods, under date of September 5, 1890. Some of the goods illustrated are Coal Hods, Stove Boards, Acme Stove Pipe, Buffalo Dampers and Damper Clips, Dripping Pans, Elbows, Fire Shovels, Pokers, Fire Sets, Hollow Ware, Stamped Ware, &c. This circular will be valuable to the dealer, because of the large number of season and house furnishing goods shown.

The Export Trade.

We regret not being able to report an improved condition in the market for export, the trade continuing about as at our last review.

The Argentine Republic affairs are not yet settled, and orders will not be placed. There will probably be a good demand as soon as the financial condition of the country is settled.

The South African trade continues fairly well, but there will probably be a cessation, owing to the reported failure of the Union Bank of Cape Colony, caused by forgery to the extent of £151,000, unless the directors of the bank can be held personally liable. This will undoubtedly affect the importers very seriously in that market. There are some very large orders now in hand, which are being held back until a complete knowledge of the state of affairs in that market is obtained.

Heavy rains have fallen throughout the Australian Colonies, and they have been so severe in some cases that a repetition of the disastrous floods which occurred a few months ago was feared. This made dealers in that country very cautious in ordering, and they have only been buying such goods as they were obliged to, and those only in small lots, consequently stocks in the importers' hands are very large; but the general belief is that with a return of settled fair weather business will pick up very rapidly.

The imports for the first half of the year for New South Wales shows a falling off of £3,000,000, or nearly 29 per cent. of the total.

The steamer loaded by the Australian-American Shipping Company, Limited, sailed on August 19 with a full cargo. She stops at Cape Town, Adelaide, Sydney and Melbourne. This action on the part of the company created quite an excitement in the freight circle, and now follows the steamer Karlsruhe by the opposition line for the same ports, with the exception of Cape Town. The rate on this steamer will be some 4 or 5 cents cheaper per cubic foot, and is only another instance showing the fierce warfare which is now going on among the freight lines.

It may be well to call the attention of our American manufacturers and producers to a few figures which will show the development of the English trade with foreign countries during the past few years. We, in this country, are apt to think that the export trade is simply a department of our business especially gotten up for the purpose of relieving our manufacturers of their excessive stocks, job lots and damaged goods. This is not the opinion of all engaged in the trade, however, but perhaps that of a few who have little or no knowledge of it. The export

and import trade of England for the last few years, instead of relapsing into decay as we have been led to believe, has been and is making great progress every year. The trade has reached enormous proportions, the United Kingdom supplying almost every country on the globe and owning more than half the tonnage of the whole world. This is something almost incredible, but the truth.

The total amount of imports for the year ending December, 1889, amounted to $2,138,000,000. The total amount of exports of British and Irish productions and of foreign and Colonial merchandise for the same period is $1,575,000,000, making a total of $3,713,000,000. These figures are interesting and suggestive to an American who reflects for a moment upon the resources and enterprises of his own country, which are yet in their infancy.

The increase of the foreign trade for the past two years has been remarkable. During the year ending December 31, 1888, the imports were nearly $125,000,000 more than for the corresponding time of the previous year and for the year ending December, 1889, the imports were more than $200,000,000 greater than the year previous, that is 1888, so that there was an actual gain of imports in the two years of about $325,000,000. The export trade also shows a substantial gain. During the year ending December 31, 1888, this trade increased $86,000,000. For the year ending December 31, 1889, there was also an increase of about $76,000,000 over the previous year, making a total for the two years of $162,000,000, showing a total gain in the export and import trade of the United Kingdom of about $487,000,000 in the years 1888 and 1889. This is truly a prosperous condition of business and should spur our manufacturers up to the fact that competition in the markets of the world is most desirable, and that they should have patience and believe in the exertions which are being put forth to encourage that department of the trade in United States.

The Care of Price-Lists.

BY HERBERT N. BREESE, NANTICOKE, PA.

In the care and convenient arrangement of catalogues and price-lists no single idea can be carried to any great extent, although a complete cabinet may be arranged, as Fig. 1. Few price-lists can well be destroyed, since the successful Hardware merchant will often have call for goods not carried in stock, and when catalogues are old and goods represented are out of date, repairs and new parts will very often be called for, especially in Agricultural Implements, Stoves, Light Machinery and many other lines, and a recourse to cuts and price-lists will often avoid mistakes in ordering.

The larger catalogues containing general lines of Hardware, such as Sargent & Co.'s, Russell & Erwin's, P. & F. Corbin's, and Peck, Stow & Wilcox Company's will require the greatests pace and should have the most convenient place, being arranged in the middle portions of the cabinet A. A., standing on end with their backs to view, in alphabetical order, and each space indexed as in drawing. The extra large catalogues sent out by numerous Silver Hollowware houses, such as those of Meriden Britannia Company, Simpson, Hall, Miller & Co., also Eagle Lock Company and some manufacturers of Builders' Hardware, are provided for in the two shelves at the top, B, partitioned at the center. The small paper covered pamphlets, such as Stanley Rule and Level Company's, Bemis & Call Company's, and of kindred sizes, can best be arranged in shelves lying flat, with backs outward, as shown in C. Each partition being indexed at the left hand margin. The small circulars, the size of an ordinary business envelope, which so many are to be taken care of, can best be arranged by classifying according to the different lines of goods of which they treat, and either

Fig. 1.—Cabinet for Catalogues and Price-Lists.

keeping them together by rubber bands or keeping them in bellows envelopes, Fig. 2, all sizes of which may be obtained. These envelopes should be properly engrossed, stating class of goods represented by contents, also the name of each manufacturer whose circulars are contained therein. Drawers are provided for these bundles or envelopes at the lower right hand side of cabinet D, Fig. 1. Next comes the scrap book, which should be 9 x 11 inches. In this can be pasted all the single sheet circulars, letters relating to specialties and all odd matter that is needed for ready reference. A very handy method of indexing this is to cut light colored kid or morocco ½ x 1 inch and paste on the leaves so that they extend ½ inch beyond the margin when the book is closed. This will answer as a thumb index, and by lettering on both sides of the kid can be used either right or left handed, Fig. 3.

Extra leaves of new goods often sent by manufacturers, paged and numbered, should be pasted in place at time of receipt, and it has always been my practice to paste letters of extra information in regard to certain articles in the catalogue opposite the goods referred to.

A place has been prepared for the scrap book and Hardware price books, E, Fig.

Fig. 2.—Bellows Envelope for Small Circulars.

1, which are indispensable to the well posted Hardwareman. In regard to these I will mention *The Iron Age* price books, if you wish to write the names of all articles yourself, or Lamberson's, if you wish a price book with the names of articles printed. Catalogues referring to lines of goods that the merchant may make a specialty of, such as Stoves, Lamp Goods, Electrical Goods and Supplies, &c., can best be kept, each line by itself, and in the drawing I have prepared are drawers for this purpose, F, Fig 1.

The under section of the cabinet can be partitioned off to arrange back numbers of *The Iron Age*, also circulars for distribution and advertising matter or stationery.

The arrangement and size may be varied according to the space that can be devoted to such purpose, or the under section may be omitted and the upper section be placed on a table, from which ready reference may be made to the catalogues.

The habit of arranging matter in its proper place as soon as received, also the motto, "A place for everything and

Fig. 3.—Scrap Book.

everything in its place," cannot be too greatly emphasized in connection with the above subject.

Obituary.

The trade will learn with much regret of the death last Thursday of Charles T. Salisbury, agent of the American Screw Company. On the preceding Saturday Mr. Salisbury went to Block Island to spend a few days with his family at his

summer residence there, but soon after landing was taken with a severe and what proved a fatal attack of cholera morbus. Mr. Salisbury was a son of Deacon Theophilus Salisbury, and was about 50 years of age. He leaves a wife and three daughters. One of the daughters is the wife of Mr. Charles R. Makepeace, the well-known mill engineer. Until 1865 he was engaged with the Union Oil Company, of Providence. He then went to New York as cashier of the Eagleton Mfg. Company, with whom he remained until 1870, when he was elected treasurer of the Continental Screw Company, of Jersey City. Upon the sale of that company to the American Screw Company he returned to Providence and was made secretary of the latter company in 1872, which office he held until 1883, when he was elected agent, which position he held until his death. Mr. Salisbury was widely known and highly respected for his integrity and ability. He was unquestionably one of the best informed and ablest men connected with the Screw business, and was thoroughly devoted to the interests of the company with which he was connected. With his courteous and dignified bearing, there was coupled a rare sagacity and energy, and the American Screw Company is recognized as having suffered a severe loss in his death.

Export Notes.

We have already referred to the tour in foreign countries made by representatives of the Hart Mfg. Company, Cleveland, Ohio, with a view to enlarging the export demand for their goods. This enterprise and its results is more definitely referred to in the following letter from Thomas R. Miller, one of the company's representatives writing under date Cleveland, September 4. Similar enterprise on the part of other American manufacturers would doubtless result in a largely increased foreign business :

The writer has just returned from a trip to Australia and Great Britain, taken in the interests of the Hart Mfg. Company ; found business abroad on the increase and took many orders for the Duplex Die Stocks. These tools are growing in great favor abroad as well as at home, mechanics realizing the importance of having improved modern tools, insuring them quick, accurate and perfect work.

It is a pleasure to state I found *The Iron Age* about as well circulated abroad as at home, and is the only recognized authority on American Hardware and Tools by the dealers in the colonies.

Was accompanied on the trip by Louis F. Hart, son of Charles Hart, the proprietor of Hart Mfg. Company.

In regard to reciprocity and the Axe trade, we take pleasure in laying before our readers the following letter we have received from James H. Mann, treasurer the American Axe and Tool Company, Pittsburgh, Pa. :

As representative and an officer of the American Axe and Tool Company, of Pittsburgh, Pa., I wish to make a statement, which, if you deem wise, I would thank you to insert in your paper. We have 14 large factories in our corporation and make and ship three-fourths of all the axes made in the United States. We approve of reciprocity as set forth in letters of Hon. James G. Blaine and amendments to the Tariff bill pending before Congress offered by Hon. John Sherman and Hon. A. W. Aldrich. The duty on our goods going into countries north and south of us will average $1.60 per dozen. Germany and England, with their cheap labor, have secured almost all of the South American, Mexican and West India trade. With reciprocity our trade would be increased tenfold, as American Axes and tools are the best in the world. All we want is a chance to spread ourselves.

Price-Lists, Circulars, &c.

The Nubian Iron Enamel Company, of Chicago, accompany their September calendar, which they are now distributing with a card asking the recipient "Do You Use Asphaltum ?" The question itself arrests attention, and when a man is button-holed he must listen to what follows, which is in this case a description of the merits of Bonnell's Nubian. A brochure in black also claims perusal.

The Michigan Bathtub Company, of Homer, Mich., issue a catalogue illustrating the Goodrich Self-Heating and Folding Bathtub. The Bathtub is complete within itself, combining as it does, water supply, heating apparatus, bathtub and waste water exhaust. All sizes of American Pattern Bathtubs are 5½ feet long, 2 feet wide and 1 foot 6 inches deep; and when folded up, out of use, occupy but little space.

The Cleveland Hardware Company, of Cleveland, Ohio, manufacturers of Wagon, Carriage, Cart and Sleigh Hardware, issue a small pamphlet entitled "A Bit of Evidence and Facts About Shears." It illustrates Shears and Shears and Punches combined, for cutting and punching iron. The company give their guarantee, their claims, and a number of testimonials from Hardware merchants and manufacturers.

The Central Mfg. Company, 678 Broadway, Albany, N. Y., issue circular price-lists, illustrating their Peerless Hollow-ware and Combination Steam Cooker and Baking Pan. The former has side as well as top bails, which does away entirely with the use of cloths to prevent the hands from being burned while pouring off the water, while the perforations in the cover allow the water to pass off quickly, retaining the cooked food, as the side bail securely holds the cover in place. The Combination Steam Cooker and Baking Pan consists of drip pan with a cover, and is used for roasting meat and poultry, steaming and baking.

W. P. Pope, 1104 and 1106 Pacific street, Brooklyn, N. Y., send us an illustrated catalogue and price-list of Tools for the practical painter and paper hanger, as manufactured by him. These consist of Perfection Straight Edge, Sliding Extension Rules, Gasoline Paint Burners, Paper Hangers' Shears, and sets of Tools packed in a wooden box, comprising Smoothing Roller, Seam Roller, Butting Knife and Nickel Plated Plumb Bob.

J. D. Smith & Co., Cincinnati, Ohio, issue an illustrated catalogue and price-list, No. 9. They are manufacturers of Foundry Facings and Blackings, importers and refiners of Graphite and manufacturers of and dealers in supplies for foundries, rolling mills and furnaces. The line of goods included in the catalogue is very extensive, and is indicated by the fact that there are 158 pages to the pamphlet, each one of which refers to at least a single article, and many of the pages having a large number of cuts. The first three pages are taken up with an alphabetical index. In the introduction to the foundry and furnace trade Messrs. Smith & Co. mention that they have increased the capacity of their facing mill considerably since the publication of their last catalogue, and introduced a few more brands, notably their Radiant Silver Lead. They claim to make a high grade line of Facings and Blackings, which they guarantee, and consequently charge a higher price for them than the poorer compounds are sold at. Considerable space is devoted to Facings and Blackings, Sand, &c., after which appears a notice of Brushes, Shovels, Bellows, Screens, Rammers and other foundry supplies. Next come Cupola Brick, Pig Iron Trucks, Pressure Blowers, Portable Forges, and several pages are devoted to the Colliau Cupola Furnace, for which they are agents. A varied line of Traveling Cranes and similar machinery is also noted, while Foundry Ladles are illustrated and described. Exhaust Tumbling Barrels and Barrows cover several pages, as do Snap Flasks and Molders' Clamps. A Stove Plate Grinder is illustrated, and then come brass founders' supplies. Illustrations are presented of Monk's molders' tools, together with price-list and size. The remainder of the publication contains miscellaneous information, together with reference to some specialties. Prominence is given to the fact that they outfit a foundry complete, on which class of work estimates will cheerfully be given. The catalogue is one which will claim the attention of those interested in this line of goods.

Hardware in Hungary.

Some interesting facts were brought to our notice in a conversation with a gentleman who has just returned from a European trip, in which pleasure and business were combined. Hungary was an objective point, and while he was particularly interested in Steam, Gas and Water Goods, his observations were not confined to these lines. We were shown some Hungarian catalogues of the goods above named, and of Agricultural Implements. These price-lists are liberally illustrated and showed much enterprise, though the cuts give the impression that the goods are clumsy. This we were informed was the case. For instance, a Bath Cock would be three times as large and heavy as one of American make, to do the same work. On account of the lightness of American goods and their flimsy appearance, they would be objected to, and nothing but a trial, showing their ability to stand the pressure, would overcome this prejudice. A noticeable fact was, that flanges were largely used in Brass Goods, where we would use threads, and particularly so was this in the larger sizes, as on 1, 1¼ and 1½ inch Cocks. They did not appreciate fine tools for their workmen. When a Nickel Plated Wrench was shown, possessing peculiar advantages—a tool an American mechanic would highly appreciate—their objection was that their workmen were rough, ignorant fellows and would soon break such a tool as that. Quite a number of American goods were illustrated in the catalogues, such as Agricultural Implements, Steel Goods, as well as Screw Plates and some of the smaller tools, showing that the territory in question is accessible. The signs on the stores are very large, containing not only the name of the firm but pictures of the different classes of goods dealt in. These are made con-

spicuous and could be seen quite a distance. We also learned that grain is still threshed with the flail or by oxen walking over it, and the straw tossed in the air, for the chaf to blow out ; not a Threshing Machince was seen. The Hungarian merchants seem interested in American goods, taking pains to examine them and inquire into their merits. Several orders were secured as a result of this trip, and inquiries have followed in regard to goods which represent a large amount of money.

Exports.

PER BARK ZANRAK, JULY 9, 1890, FOR LAUNCESTON, TASMANIA.

By Walter A. Wood Mowing and Reaping Machine Company.—594 packages Agricultural Implements.

By Coombs, Crosby & Eddy.—12 cases Horse Nails.

By Strong & Trowbridge.—418 cases Axes and Hatchets, 190 Reels Barb Wire, 80 cases Axle Grease, 49 cases Hardware, 46 cases Bush Hooks, 35 kegs Nails, 22 Stoves, 12 packages Stoves, 8 crates Stoves, 16 cases Lawn Mowers, 15 cases Shovels, 11 cases Agricultural Implements, 10 crates Fly Traps, 7 boxes Pumps, 4 casks Pumps, 1 case Pumps, 6 cases Forks, 6 crates Windmills, 4 cases Plow Castings, 3 cases Platedware, 3 cases Locks, 3 cases Hinges, 3 cases Springs and Axles, 3 cases Grindstones, 2 cases Door Springs, 2 cases Bolts, 2 cases Stone, 2 cases Hoes, 1 barrel Hoes, 1 case Pulley Blocks, 1 barrel Pulley Blocks, 1 case Platedware, 1 case Lampware, 1 case Seed Sowers, 1 case Scythes, 1 case Razor Strops, 1 case Plows, 1 package Bits.

PER SHIP SELKIRKSHIRE, AUGUST 9, 1890, FOR SYDNEY, N. S. W.

By H. W. Peabody & Co.—4 cases Pumps, 1 case Carriage Hardware, 4 boxes Iron Castings, 116 cases Fruit Jars, 1 case Cultivators, 1 case Lampware, 5 cases Firearms, 1 case Builders' Hardware, 6 cases Corn Mills, 1000 pounds Nails, 2 cases Flint Paper, 100,000 Rivets, 1 case Shoe Tools, 3000 pounds Nails, 2 cases Shoe Tools, 1 dozen Wringers, 2 dozen Apple Parers, 10 Shellers, 12 Scrapers, 1 crate Builders' Hardware, 24½ dozen Lampware, 200 pounds Nails, 2 dozen Edge Tools, 1 dozen Money Drawers, 10 Corn Shellers, 1 case Freezers, 1 case Builders' Hardware

By W. H. Crossman & Bro.—10 dozen Nails, 12 dozen Traps, 300 pounds Nails, 5000 Cartridges, 1 dozen Wringers, 3 dozen Scales, 4 cases Builders' Hardware, 24 dozen Hoes, 1 case Builders' Hardware, 1 case Plows Parts, 2 cases Carriage Hardware, 3 dozen Bench Screws, 10 dozen Braces, 1 case Builders' Hardware, 21 reams Flint Paper, 1 cask and 3 barrels Lamp Goods, 3 Forges, 3 dozen Scoops, 18 dozen Hatchets, 22 dozen Bells, 36 dozen Traps, 3 dozen Carpet Sweepers, 1700 pounds Nails, 1588 pounds Tacks, 10 dozen Spades, 6 dozen Scoops, 35 dozen Wrenches, 2 cases Builders' Hardware, 15 dozen Axes, 30 dozen Hatchets, 12 dozen Lanterns, 22 dozen Cow Bells, 15 dozen Hammers, 20 gross Polish, 20 dozen Axes, 20 dozen Hatchets, 6 gross Razor Strops, 3 dozen Hammers, 2 cases Builders' Hardware, 6 dozen Transom Lifts, 10 dozen Axes, 6 dozen Lemon Squeezers, ½ Wringers, 2 cases Builders' Hardware, ½ dozen Carpet Sweepers and Brushes.

By Ilsley, Doubleday & Co.—50 cases and 100 kegs Axle Grease, 140 kegs Axle Grease, 5 gross Egg Beaters, 5 gross Tools, 50 gross Axle Grease.

By Strong & Trowbridge.—24 dozen Scythe Snaths, 4 dozen Rakes, 21,000 Bolts, 2½ gross Axle Grease, 1½ dozen Churns, 10 dozen Hammers, 4 dozen Pumps, 1 dozen Wrenches, 24 Cylinder Churns.

By A. Field & Sons.—77 boxes Iron Nails.

By McLean Bros. & Rigg.—1 dozen Axes, 120 dozen Pulleys, 10 Churns, 1 dozen Wringers, 6 dozen Hay Forks, 6 dozen Locks, 36 dozen Mop Handles, 24 dozen Hatchets, 1½ dozen Choppers, 1 case Graniteware, 3 dozen Wringers, 1 dozen Lanterns, 36 dozen Hammers, 35 dozen Saws, 15 sets Stocks and Dies.

By Healy & Earl.—7 cases Forges, 13 boxes Scales, 3 cases Centrifugal Pumps, 1 box Emery Wheels, 10 cases Wood Working Machinery.

By W. E. Peck.—3 packages Platedware, 500,000 Skewers, 1 case Platedware.

By R. W. Forbes & Son.—25 packages Scrapers and Barrows, 3 packages Plows.

By The F. B. Wheeler Company.—2 dozen Brushes, 2¾ dozen Knives, 27 dozen Wringers.

By Arnold, Cheney & Co.—1 case Hardware, 6 cases Bolts, 1 Bicycle.

By R. W. Cameron & Co.—15 packages Machinery, 195 pounds Carriage Castings, 1 case Carriage Hardware.

By V. Basanta.—3 dozen Braces, 21 Hardware, 28⅓ dozen Saws, 62 Planes, 19 dozen Locks.

By A. S. Lascelles & Co.—15 dozen Hoes, 10 dozen Axes, 13 dozen Spades, 15 dozen Hoes.

By P. D. Ackerman & Bro.—440 pounds Platedware.

By Dunbar, Hobart & Co.—1130 pounds Nails.

By Meriden Britannia Company.—12 barrels Platedware.

By Edward Miller & Co.—39 packages Lamp Goods.

By J. A. Gifford.—30 dozen Horse Brushes.

By Simpson, Hall, Miller & Co.—3 casks and 1 barrel Platedware.

By J. L. Mott Iron Works.—7601 pounds Cast Iron Stoves.

By Fairbanks & Co.—25 boxes Wood Pulleys.

REVIEW OF THE WHOLESALE MARKET IN PAINTS AND OILS.

It should be understood that the prices quoted in this column are strictly those current in the wholesale market, and that higher prices are paid for retail lots. The quality of goods frequently necessitates a considerable range of prices.

Paints and Colors.

There have been no particularly new developments the past week. Business has proceeded in about the usual way, involving the movement of a fairly liberal quantity of the more staple lines of Paints and crude materials employed in the manufacture of the same, and the general demand is fairly active at the present time. With some few unimportant exceptions, values are decidedly firm, and in not a few instances there is a tendency of prices toward a higher level. The steady advance in the cost of Pig Lead tends to create an impression that prices for White Lead and by-products will be advanced again before the end of the year. That fact, coupled with the absence of any signs of cheaper Linseed Oil and the enhanced cost of some of the crude materials employed in the manufacture of cheap Leads and ready mixed Paints, operates to cause a hardening tendency on prices of the latter goods, while a rise in the cost of Quicksilver has a similar bearing upon Quicksilver Vermilion. Conditions bearing upon several minor commodities, it is also to be remarked, point to higher prices rather than any movement in the opposite direction. In fact, the autumn season opens with an undercurrent of strength to values nearly all along the line, such as has rarely been experienced, and, along with it, a good volume of business.

White Lead.—Standard brands are very firmly held at the revised prices quoted a short time ago by corroders and jobbers; sales are almost invariably at a similar rise. The practice of supplying retail customers at the wholesale list prices is still general, however, and sales of lots of a few hundred pounds at 6¼¢ @ 6½¢ are common. Some of the better descriptions of so-called cheap Lead are a fraction higher now than they were a month ago, but many are sold at the old figures, owing to sharp competition. As a whole the movement of the various Pigments is fairly large, but not above the normal value for this season of the year.

Zincs.—All grades of American Oxide are steady at the old line of prices, with deliveries from first hands reported as being satisfactory and the jobbing distribution good. Foreign brands have advanced another ¼¢ all around in sympathy with higher cost in the primary markets. The V. M. Company's brands are now quoted as follows:

Dry Antwerp Red Seal	7½¢
Dry Antwerp Green Seal	8¼¢
Dry Paris Red Seal	8⅝¢
Dry Paris Green Seal	8¾¢

Discounts—On lots of 10 bbls. 1%
On lots of 25 bbls. 2%
On lots of 50 bbls. 4%
Terms, 30 days.

Ground in Poppy Seed Oil.	In Drums. 1-ton lots.	In Drums. Less than 1 ton.	In cans. 1-ton lots.	In cans. Less than 1 ton.
Red Seal	10¢	10¼¢	10½¢	10¾¢
Green Seal	10¾¢	11¢	11¼¢	11½¢

Colors.—Prices for Blues have been advanced 5¢ @ 15¢, as to character of goods, owing to enhanced cost of Prussiate Potash, and the tendency of Dark Greens is also upward. Quicksilver Vermillion is firmer, owing to a rise in the price of Quicksilver, but manufacturers have not advanced their figures. The better grades of Venetian Red are also very firm. On other colors there has been no radical change, but the general tendency is in the direction of better prices. The movement of supplies is on a fairly liberal scale.

Miscellaneous.—Prices for Block Chalk are somewhat irregular. Lots to arrive by steamer may be secured at about $2, but owing to scarcity of tonnage at the sources of supply and consequent high rates of freight, supplies per sail vessel are held at $2.25 @ $2 40. Whiting is firmer, but without quotable change, and Paris White steady at former quotations.

Oils and Turpentine.

The general situation in the market for Animal and Vegetable Oils is unchanged. Goods are being distributed in a fairly satisfactory manner on home account, but export interest is unimportant and the position of supplies gives neither buyer nor seller any fresh advantage. Latest developments in the Seed market put a damper upon expectations of more moderate prices for Linseed Oil right away. On the other hand, the outlook for Cotton Seed Oils is rather poor, owing to the prospects for a heavy Cotton crop, and probable increase in mills to be operated this season. Otherwise there appears to be nothing outside of ordinary conditions calculated to influence values or guide the movements of buyers or sellers.

Linseed Oil.—City crushers hold their prices firmly at 62¢ for American and 64¢ for Calcutta seed product. The cost of both domestic and foreign Seed has increased during the past week, and the outlook for cheaper raw material or modified prices for Oil is very slender. Out of town brands are quoted at 58¢ @ 59¢, but even at the 3¢ @ 4¢ difference in price are not taken to any greater extent than heretofore in the place of city brands. The current movement is fairly liberal.

Cotton Seed Oils.—Representatives of some of the largest producers have offered to sell new season prime Crude Oil for November and December delivery at 27¢, and new prime Summer Yellow at 33¢, which would indicate low opening figures. Otherwise the market has been bare of new feature. The home trade demand is only fair, exporters are doing little at the moment, and what business does take place is at old prices.

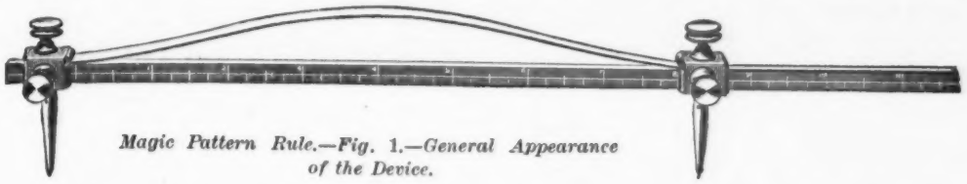
Fish Oils.—About 2500 barrels dark color crude Menhaden have been sold at 19¢ @ 20¢, which prices show a slight decline. Good merchantable and prime light Oil, however, is still held at 21¢ @ 22¢. There has been no material change in crude Sperm or crude Whale. Manufactured Fish Oils in general are jobbing at unchanged prices.

Lard Oil.—In this lubricant there has been the average trade, and the market is without visible change in any particular. Present make prime brings 51¢ @ 52¢, and extra winter about 2¢ more.

Spirits Turpentine.—Prices have receded to 39½¢ @ 40¢ under the weight of free offerings, but during the past few days the advices from the South have been more in sellers' favor, and the market showed better tone at the close.

Magic Pattern Rule.

We illustrate herewith a rule intended for the use of pattern cutters, and which serves to delineate the shape of elbow patterns and other commonly occurring forms. It is put upon the market by the Lufkin Rule Company, Cleveland, Ohio. The cut of the rule, Fig. 1, represents the device one-eighth of its actual size. By referring to the engraving it will be seen that it consists of a bar on which trammel points are fastened, thus making the device a good beam compass, as well also as serving for the use to which it is specially devoted. Over the bar is a flexible strip of steel, which is fastened in place at points that are adjustable with respect to each other by means of the clamp which holds the trammel points. This steel strip may be more or less expanded between points, according to circumstances, and an adjustment may be made of it in a very brief period of time. When properly expanded the strip gives the outline of the pattern form. The makers claim that the use of this rule does away with ready cut patterns and also saves the tedious calculations by which elbow pattern forms are ordinarily laid out. The rule is provided with a convenient case, as shown in Fig. 2. A chart, which is furnished with the rule and which supplements it, is shown in reduced *fac-simile* in Fig. 3. It gives the points that have to be established in the use of the flexible steel strip to which we have already directed attention. This chart is mounted on linen, is durable and takes the place in the modern tin shop of the wall hung full of patterns, which was characteristic of the old time tin shop. By this device patterns for conical and cylindrical work may also be laid out, but it is particularly adapted to patterns of elbows of any diameter or angle in any number of pieces.



Magic Pattern Rule.—Fig. 1.—General Appearance of the Device.

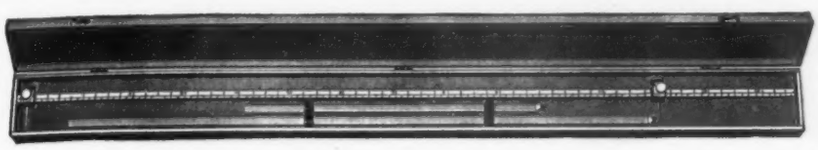


Fig. 2.—The Magic Pattern Rule in Its Case.

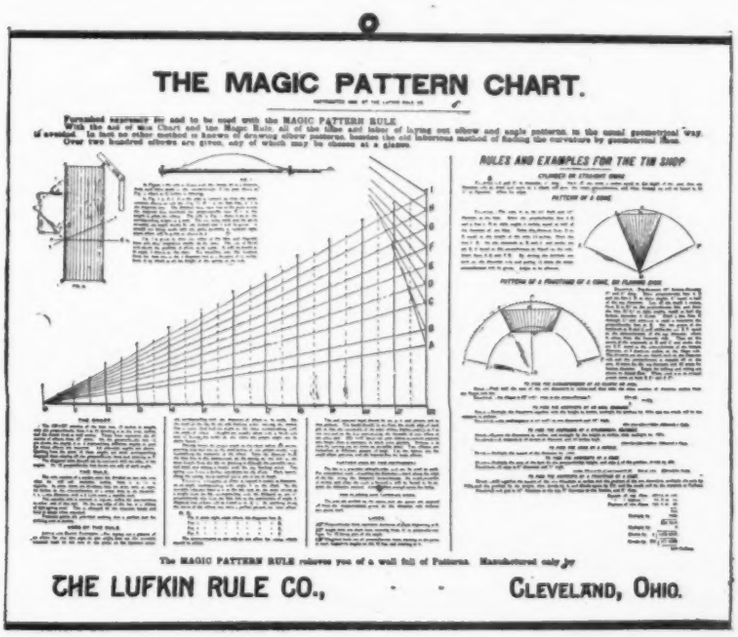


Fig. 3.—Reduced Fac-Simile of The Chart Supplied with The Magic Pattern Rule.

Business depression in Japan is severe, mainly owing to the failure of crops caused by protracted rains, but aggravated exceedingly by enormous investments in railroads, manufacturing and other forms of enterprise said to equal $100,000,000, or an amount exceeding the total of Japanese currency. Money became so scarce that there was no purchase for goods, which declined in value beyond any parallel in recent years. A Yokahoma letter dated July 28, says, that besides ordinary causes of decline foreign exchange has suddenly risen. The writer adds: "Many foreign merchants in this port sell out their goods 5 to 6 cents, or 10 per cent. lower than the price before the rise in exchange. The present rise of exchange also caused a great change in the price of silk, which is one of our largest exports and liable to cause the rise and decline of our trade. By the extraordinary rise of the price of rice its export amounting to about 516,000,000 pounds was altogether stopped, while on the contrary an equal amount of rice was imported from foreign countries. This causes a great change in import business. Such being the present state of our business world, I presume this year will also be very dull. As I stated before, shares of new companies absorbed all our currency and made the money scarce. In May of this year more paper money was issued upon consultation of Nippon Ginko with all national banks to remedy this. Since then it seems that the business is getting a little better. But, as you know, June, July and August are called the months of rest for business men, and much cannot be expected."

Black Cloud Chemical Fire Extinguisher.

The Black Cloud Chemical Fire Extinguisher Company, Cleveland, Ohio, are introducing a fire extinguisher as illustrated herewith, Fig. 1. The cylinder is made of steel plate; the inside lining of copper and block tin. The cylinder is riveted with copper rivets every ½ inch. The machine is operated by raising the rod, when the tube revolves. The following points of superiority are claimed by the manufacturers: Simplicity of action; durability; that it is not explosive; that the cost of recharging is but 10 cents; that it is light to handle, weighing 22 pounds

Fig. 1.—Black Cloud Chemical Fire Extinguisher.

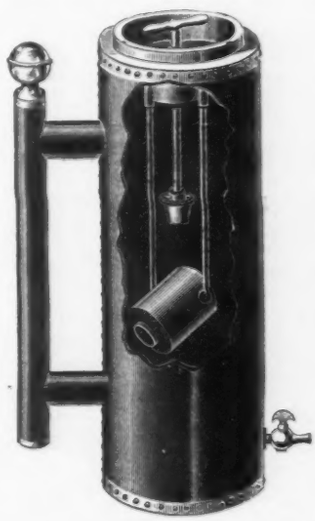


Fig. 2.—Interior Construction of the Black Cloud Fire Extinguisher.

when charged; that it will extinguish over 2000 cubic feet of flame; that it will not injure flesh or fabric; that it carries no pressure until the rod is raised; that it will not freeze; that it does not loose its strength in any climate, and that it throws a stream from the pet cock 45 feet in length. The extinguisher is 17 inches high, 5 inches in diameter and the handle takes the place of a hose.

Expansible Wire Tree Guards.

The American Tree Guard Company, 74 Cortlandt street, New York, factory at Trenton, N. J., are introducing an expansible wire tree guard, as illustrated herewith. This guard consists of a band of galvanized iron wire, wound spirally around the trunk of the tree and fastened with a staple at each end. The wire is 15 gauge, and the band is intended to expand, if necessary, to three times its size as the tree grows. A circular issued

Expansible Wire Tree Guards.

by the company reproduces testimonials from authorities in tree cutters, as well as from the hardware trade.

The Lansing Scrap Iron Barrow.

The Lansing Wheelbarrow Company, Lansing, Mich., are introducing a scrap iron barrow, as illustrated herewith. They mention the fact that generally rolling mills, when needing heavy barrows, have had them made to order, not being able to obtain those that were strong enough for their work. The Scrap Iron Barrow is being manufactured to fill this want, being made after the pattern of the best of these hand made barrows to be found in the country. The description of the size and materials is as follows: Handles are 2 x 3 inch white oak; box of 1¼ inch maple; size of box at top, 26 inches wide in front, 30 inches wide in back, 34 inches long; heavy wheel, 19 inches in diameter, 1¾ inch tread, ¼-inch tire, end of hub banded. Weight of barrow, 125 pounds.

The Lansing Scrap Iron Barrow.

Acme Bean Cutter.

L. Salomon, 118 Chambers street, New York, is manufacturing the Acme bean cutter, as illustrated herewith. This is

The Acme Bean Cutter or Splitter.

made of cast iron, tastefully bronzed, and attaches to the table with a thumb screw. Seven steel disks or circular knives are fastened securely to the shaft, to which the crank is attached. The knives, in revolving, pass through slots in a metal plate, which removes any accumulation from the knives. On the opposite side of the cutter from the knives is a cylinder with grooves cut in it corresponding to the knives, and between the cylinder and the knives the beans pass as fed into the hopper above. It is used to cut or split string beans, after which the beans are canned or pickled; the beans being fed into the machine lengthwise. It is simple in construction, and is claimed to have a cutting capacity of three bushels of beans per hour.

The second attempt to put into effect the uniform bill of lading on all roads leading eastward from Chicago has resulted in another failure. The new bill was to have been adopted on the 1st inst. in accordance with the recent agreement of the Chicago Freight Committee of the Central Traffic Association, but according to dispatches from Chicago there seems to have been a hitch in the arrangements. The Wabash road declined to use it on through shipments in connection with the Canadian Pacific, and the Chicago and Grand Trunk refused to use it unless the Wabash applied it on all through business. The Big Four would only adopt the bill in case all other roads adopted it, and the result was that three of the Chicago roads continued giving their patrons the old form of receipt. The outlook for the new bill of lading is looked upon as very gloomy.

SOUTHERN MISCELLANY.

J. K. Barton, vice-president and general manager of the Georgia and Alabama Consolidated Company, at Cedartown, Ga., has recently consummated a big deal, which embraces over $300,000 worth of fine ore property. Considerable Northern capital is interested in the purchase, among the parties being Alexander Maitland, of Negaunee, Mich., general manager of the Iron Cliff Company; John Paulson, for many years president of the Buffalo Mining Company, of Negaunee, Mich., but who is at present a banker and large manufacturer in Minneapolis, Minn.; John McKay, of Ashland, Wis., who owns an interest in the Colby mines of that State, and W. A. Porter, formerly Deputy Attorney General, of New York City. This deal means much for for the future iron development of Cedartown and that portion of Georgia.

Work on the iron plant of the Morgan Mfg. Company, of Spartanburg, S. C., has begun. Mr. W. E. Lucas, president of the company, has just returned from a several weeks' tour in the North, where he bought the necessary machinery.

The Southern Malleable Iron Company have been incorporated at Chattanooga, by P. A. Brawner, Jr., and others, to establish a malleable iron works.

The Lookout Rolling Mill, at Chattanooga, Tenn., has been experimenting with negro labor, but has decided to abandon it, declaring it to be a failure in rolling mills. About a year ago the white union men employed at the mill went out on a strike and the negroes were put in their places. The year's experiment not proving successful the mill has re-employed white labor.

At Cedar Bluff, Ala., the Cedar Bluff Land, Mining and Mfg. Company have perfected their organization by the election of R. Lawrence, president; W. E. Quinn, vice-president, and J. F. Burnett, secretary.

At Fayetteville, N.C., the Carolina Machinery Company have been organized with A. B. Williams, president; M. H. Russell, general manager, and W. S. Cook, treasurer. The company have a capital stock of $20,000, some of which was subscribed in Boston.

At Llano, Texas, the Wakefield Iron and Coal, Land and Improvement Company have been incorporated with a view of developing extensive coal and iron properties in that vicinity. The company have a capital stock of $2,500,000.

It is reported at Attalla, Ala., that the Nashville, Chattanooga and St. Louis Railroad Company, together with the Alabama Mineral Railroad Company, will establish in Attalla machine shops and round house for their joint use.

At Marion, N. C., the Western North Carolina Iron and Stone Mining Company have incorporated to open iron mines and stone quarries. The capital stock is $500,000. B. C. Gaden is president and J. H. Butler, secretary.

The machine shops of the Cincinnati Southern Railroad are about completed at Chattanooga. The equipments are all of a most improved pattern and the shops will employ 20 men.

The capital stock of the Cheraw Iron Works, of Cheraw, S. C., has recently been increased to $25.000.

A new iron foundry building will be erected for the Jackson Foundry Association, of Jackson, Tenn.

At New Orleans, La., E. Dudley Coleman & Co. have been incorporated into the E. Dudley Coleman Machinery Company, with a capital stock of $100,000. E. Dudley Coleman is president and E. L. Stream is vice-president. The machine shops of this company will be increased in capacity and improved in equipment.

At Macon, Ga., Thomas W. Troy, H. J. Lamar, Sr., J. S. Scofield, J. W. Cabaniss, J. S. Baxter and others, have incorporated The Georgia Rolling Stock Company, with a capital stock of $250,000. Plans are being prepared for car works that will be erected immediately.

The Lancaster Rolling Mill Company, with $20,000 capital stock, have been incorporated at Lancaster, Texas, by L. F. White, John Beckley and J. T. Ellis.

A party of capitalists at Pendleton, Texas, have bought $60,000 worth of iron lands in

Sabine County. They intend establishing a new town to be known as Irono, and will locate important industries.

The Crawfish Springs Land Company, of Crawfish Springs, Ga., are contemplating the erection of an iron furnace and the establishment of a machine shop and iron foundry.

A new machine shop is being erected at Beresford, Fla., by the Kingsbury Mfg. Company.

The Zinc Works at Mossy Creek, Tenn., operated by the Edes Mixter and Heald Zinc Company, of Clinton, are adding new machinery and repairing the old.

The South Tredgar Nut and Bolt Factory, at Chattanooga, Tenn., is about ready to begin operations. Its daily output will be 16,000 nuts and bolts.

At Kensington, Ga., contracts are said to have been signed recently for the establishment of a rolling mill, foundry and machine shop. An iron furnace will also be built, and negotiations are now pending for the location of pipe works.

At Birmingham, Ala., Reed Williams, Carl Jenson, and others, have bought the Birmingham Bolt and Nut Works, and will transform it into a factory for the manufacture of plow and agricultural implements.

The Shelby Rolling Mill Company, at Helena, Ala., contemplate adding bar mill rolls to their rolling mill.

The Duthie Machine and Foundry Company have been incorporated at Harriman, Tenn., by G. H. Duthie, F. W. Sanders, W. C. Harriman, and others, to build and operate the Duthie engine and machine shops, which are to be removed from Knoxville to Harriman. The company have a capital stock of $20,000.

A company have been organized by J. M. Hunt and others to establish a factory at Macon, Ga., for the manufacture of a mower recently patented by Mr. Hunt. The company have a capital stock of $50,000.

The Cumberland Land Company, Limited, have been organized in England to buy the Cumberland Iron Works' plant at Dover, Tenn. This syndicate have a capital of $1,250,000. They intend enlarging and adding improvements to this plant, and will establish furnaces and rolling mills, and will open mines.

At Charleston, S. C., the Emerson Laundry Machinery Company have been incorporated by A. S. Emerson, E. V. Emerson, W. M. Connor, and others, for the manufacture of laundry machinery. They are authorized to issue capital stock to the extent of $100,000.

A 50-ton charcoal iron furnace is to be built at Arthur, a new town projected in the vicinity of Middlesborough, Ky.

Messrs. J. P. Witherow & Co., the Pittsburgh contractors, have about completed the new furnace of the Carnegie Iron Company, at Johnson City, Tenn. It is a blast furnace of 125-ton capacity, and will be confined to the manufacture of Bessemer pig, and the company expect it to be put into blast about the beginning of the year. Johnson City is only 14 miles from the famous Cranberry iron mines, in Mitchell County, N. C., to which point a railroad was built several years ago by Pennsylvania iron men. The iron from these mines will be used by the new furnace, in connection with the coke from Pocahontas, easily accessible by railroad, thereby constituting two important factors toward the production of cheap steel of a high grade, at that point.

The West Virginia Coal, Iron and Lumber Company recently gave the American Loan and Trust Company, of New York City, a mortgage on 300,000 acres of land, in West Virginia, for money borrowed, to develop this tract of mineral and timber properties.

The Wheeland Foundry, at Chattanooga, is having an extension built to its large warehouse. This plant now confines itself to the manufacture of stationary engines and saw mills, having transferred all of its lighter work to the Chickamauga Foundry.

At Houston, Texas, the Dixon Car Wheel Company contemplate building a new cupola having a capacity of 50 tons.

The Warren Iron Works, a new enterprise at Warren, Ark., has just gone into operation.

Work is now progressing on the new foundry, machine and boiler works, recently started at Sheffield, Ala.

The Clifton Iron Company, near Anniston, Ala., have recently completed their second charcoal furnace, having 60 tons capacity per day. It will be blown in shortly.

At Cartersville, Ga., the Etowah Iron Company have been incorporated, with a capital stock of $1,500,000.

The American Arms Company, at Bluffton, Ala., have about completed the foundations for their large plant.

A Suit Against Workmen.

The H. C. Frick Coke Company, of Pittsburgh, have decided to bring suit for $100,000 damages against the employees of the Standard Coke Works, now on a strike because of the refusal of the Frick Company to discharge all non-union men employed there. Thomas Lynch, general manager of all the coke plants of the H. C. Frick Company located in the Connellsville region, has made the following statement in regard to the matter:

"We consider the action of the men at the Standard works a clear violation of the wage agreement made February 6 last, and we have about made up our minds to see whether there is any legal responsibility on the part of labor organizations, or alleged representatives of our men, for violation of contract. The agreement referred to is either a contract or it is not a contract. If the parties who made it were the fully authorized representatives of the men, as they claim to be, then the men are bound by it, and are liable for all damages we may sustain by the shutting down of the plant. If, on the contrary, the parties to the agreement were not the duly authorized agents of the men and have been guilty of fraudulent misrepresentation in signing their names as such, they are responsible as individuals, not only for the money damages, but also for criminal conspiracy. We propose to test the matter in the courts. If it is decided that the men are responsible, we have $27,000 of their money in our hands toward liquidating the judgment. If the individual signers are responsible, we will bring both civil and criminal actions against John B. Rae, Robert Watchorn, R. D. Kerfoot, C. M. Parker, M. P. Kane, John DeHaven and James Keegan, whose names appear on the agreement as representing all of the workers, not the Knights of Labor alone, mark you, but as the text of the agreement more fully expresses it, 'a committee representing all the workmen at all the works owned by, or operated by the H. C. Frick Coke Company, in the Connellsville region.'"

It is stated that before the firm decided to enter suit a consultation was had with their attorneys, who informed them that they had good grounds for a suit for damages, as the contract made with the men had been broken by them. The outcome of the suit will be watched with considerable interest.

Excellent Furnace Work.—Our No. 4 furnace, of the Allentown Iron Company, Allentown, Pa., 60 feet high and 17 feet bosh, has been doing some very good work, both in quantity of production and in low consumption of fuel. E. T. Clymer, the fuanace manager, gives below the amount of iron made each week for the last four weeks and the fuel used for each ton of iron produced. The fuel consisted of three-quarters anthracite coal and one-quarter coke. This is the best fuel yield ever obtained at the Allentown works. We question whether any other furnace making foundry iron, with iron stoves such as they use at Allentown, has done better:

	Iron made, tons.	Fuel used per ton iron, tons.
Week ending Aug. 16...	605	1.105
Week ending Aug. 23...	649	1.115
Week ending Aug. 30...	641	1.098
Week ending Sept. 6....	680	1.093

All this iron was foundry, and over 50 per cent. was A1 iron.

The machinery for Cruisers Nos. 7 and 8 is advancing rapidly at the Brooklyn Navy Yard, where the former is building. Of the 16 main cylinders 13 have thus far been cast without a single failure, and the other three will soon be cast, and then be brought out of the foundry to be bored and fitted. Considerable trouble has developed in getting the engine columns; they are of cast steel, and, after numerous attempts, the contractors report that they cannot make them. Work on the hull of the Maine is well advanced. As in the case of the columns for Cruiser No. 7, there has been much trouble with the steel castings. Eighteen hollow cylindrical columns for the main engines have been rejected on account of shrinkage cracks, and the contractors have received permission to substitute hollow forged steel columns. Fifteen valve chest covers have also been rejected for failure under hydrostatic test.

A newly patterned steel rail will be laid in Broadway immediately, preparatory to introducing cable traction. This rail was devised by the State commissioners, and has a narrow depression to receive the flange of the car wheel, but is too narrow to admit the wheels of ordinary vehicles.

CONTENTS.

CURRENT HARDWARE PRICES.

SEPTEMBER 10, 1890.

Note.—The quotations given below represent the Current Hardware Prices which prevail in the market at large. They are not given as manufacturers' prices, and manufacturers should not be held responsible for them. In cases where goods are quoted at lower figures than the manufacturers name, it is not stated that the manufacturers are selling at the prices quoted, but simply that the goods are being sold, perhaps by the manufacturers, perhaps by the jobber, at the figures named.

Adjusters, Blind.

Domestic.....₩ doz $3.00, 33⅓%
Excelsior.....₩ doz $10.00.....50&10&2%
Washburn's Self-Locking.....20&20&10%

Ammunition.—

Caps, Percussion, ₩ 1000—
Hicks & Goldmark's and Union Metallic Cartridge Co.
F. L. Waterproof, 1-10's.....34@35¢
E. B. Trimmed Edge, 1-10's.....46@48¢
E. B. Grnd. Edge, Cent. Fire, 1-10's.....46@47¢
Musket Waterproof, 1-10's.....50¢
G. D.....28¢
S. B. Genuine Imported.....45¢
Eley's E. B.....54¢ @ 55¢
Eley's D Waterproof, Central Fire...$1.60

Cartridges—
Rim Fire Cartridges.....50&5&2 %
Rim Fire Military.....15&2 %
Cent. Fire, Pistol and Rifle.....25&5&2 %
Cent. Fire, Military and Sporting 15&5&2 %
Blank Cartridges, except 22 and 32 cal., additional 10 % on above discounts.
Blank Cartridges, 22 cal., $1.75.....2 %
Blank Cartridges, 32 cal., $3.50.....2 %
Primed Shells and Bullets.....15&5&2 %
B. B. Caps, Round Ball, $1.75.....2 %
B. B. Caps, Con. Ball, Swgd., $2.00.....2%

Primers—
erdan Primers, $1.00.....2%
B. L. Caps (for Sturtevant Shells) $1.00.....2%
All other Primers, $1.20.....2%

Shells—
First quality 4, 8, 10 and 12 gauge 25&10&2%
First quality, 14, 16 and 20 gauge ($10 list).....30&10&2%
Prize.....40&2%
Star, Club, Rival and Climax brands, 33⅓&10&2%
Selbold's Comb. Shot Shells.....15&2%
Brass Shot Shells, 1st quality.....60&2%
Brass Shot Shells, Club, Rival, Climax.. 65&2%

Shells Loaded—
Standard List, July 19, 1890..40&10&5%

Wads—Price per M.
U.M.C.&W. R. A.—B. E., 11 up... 68¢
U.M.C.&W. R. A.—B. E., 9&10... 82¢
U.M.C.&W. R. A.—B. E., 8..... 96¢
U.M.C.&W.R.A.—B.E., 7.....$1.10
U.M.C.&W. R. A.—P. E., 11 up.. 1.15
U.M.C.&W. R. A.—P. E., 9&10.. 1.50
U.M.C.&W.R.A.—P. E., 8..... 1.70
U.M.C.&W.R.A.—P. E., 7..... 1.80
Die 20&2
Eley's B. E., 11 up.....$1.75
Eley's P. E., 11@20..... 2.80

Anvils.—

Eagle Anvils, ₩ ℔ 10¢.....15@15&5%
Peter Wright's.....10½¢
Armitage's Mouse Hole.....9½¢
Armitage's Mouse Hole, Extra.11½@11½¢
Trenton.....9½@10¢
Wilkinson's.....9½@10¢
J. & Riley Carr, Pat. Solid.....11@11½¢
Moore & Barnes Mfg. Co.....33⅓%

Anvil Vise and Drill—
Millers Falls Co., $18.00.....20%
Cheney Anvil and Vise.....25%
Allen Anvil and Vise, $3.00.....40&10%
Star.....45&5%

Apple Parers—See Parers, Apple, &c.

Augers and Bits—

Douglass Mfg. Co.
Wm. A. Ives & Co.
Humphreysville Mfg. Co.
French, Swift & Co. (F. H. Beecher, P. S. & W. Co
Rockford Bit Company.
70@70& 10%
Cook's, Douglass Mfg. Co.....55 %
Cook's, N. H. Copper Co.50&10@50&10&5%
Ives' Circular Lip.....60%
Patent Solid Head.....30%
C. E. Jenning & Co., No. 10, extension lip.....40%
C. E. Jennings & Co., No. 30.....60%
C. E. Jennings & Co., Auger Bits, ₩ set, 32½ quarters, No. 5, $5; No. 30, $3.50.20%
Lewis' Patent Single Twist.....45%
Russell Jennings' Augers and Bits.25&10%
Imitation Jennings' Bits.....60@60&5%
Snell's Jennings Pattern.....60%
Pugh's Black.....20%
Rockford, Jenning's Pattern.....60%
Car Bits.....60@60&10%
Car Bits, P. S. & W. Co.....60&10%
Snell's Car Bits.....60%
L Hommodieu Car Bits.....15&10%
Forstner Pat. Auger Bits.....10%
Cincinnati Bell-Hangers' Bits....30&10%

Bit Stock Drills—
Morse Twist Drills.....50&10&5%
Standard.....50&10&5%
Cleveland.....50&10&5%
Syracuse, for metal.....50&10%
Syracuse, for wood (wood list).30@30&5%
Williams' or Holt's, for metal.50&10&10%
Williams' or Holt's, for wood...40&10%
Cincinnati, for wood.....30&10%
Cincinnati, for metal.....45&10%

Expansive Bits—
Clarks' small, $18; large, $26 .35@35&5%
Ives' No. 4, ₩ doz $60.....40%
Swan's.....40%
teer's, No. 1, $26; No. 2, $22.....35%
earns' No. 2, $48.....20%

Gimlet Bits—
Common.....₩ gross $2.75@$3.25
Diamond.....₩ doz $1.10.....25&10%
Bee.....25@25&5%
Double Cut, Shepardson's.....45@45&10%
Double Cut, Ct. Valley Mfg. Co....30&10%
Double Cut, Hartwell's, ₩ gro.....$5.25
Double Cut, Douglass'.....40&10%
Double Cut, Ives'.....60@60&10%

Hollow Augers—
Ives
French, Swift & Co.
Douglass'
33⅓ @ 33⅓&10%
Bonney's Adjustable, ₩ doz $18....40&10%
Stearns'.....20&10%
Ives' Expansive, each $4.50.....50&5%
Universal Expansive, each $4.50.....20%
Wood's.....25@25&10%
Cincinnati Adjustable.....25&10%
Cincinnati Standard.....25&10%

Ship Augers and Bits—
L'Hommedieu's.....15&10@15&10&5%
Watrous'.....15&10@15&10&10%
Snell's.....15&10@15&10&5%
Snell's Ship Auger Patt'n Car Bits, 15&10@15&10@5%

Awl Hafts—See Hafts, Awl.

Awls, Brad Sets, &c—

Awls, Sewing, Common ₩ gr $1.70, 35%
Awls, Should. Peg, ₩ gr $2.45, 40@40&10%
Awls, Pat. Peg...₩ gr 63¢.... 40@40&10%
Awls, Shouldered Brad..2.70 ₩ gr.....35%
Awls, Handled Brad...$7.50 ₩ gr.....45%
Awls, Handled Scratch ₩ gr, $7.50.35&10%
Awls, Socket Scratch, ₩ doz, $1.50.25@30%

Awl and Tool Sets—See Sets, Awl and Tool.

Axes—

	Plain.	Beveled.
First quality	$8.00	$8.50
Others	7.50	8.0(

Note.—Jobbers often sell at lower prices than the above.

Axle Grease—See Grease, Axle.

Axles—

No. 1, 4½@5¢, No. 2 5½@6¼¢
Nos. 7 to 14.....55&5% } 3 % cash
Nos. 15 to 18.....47½% }
Nos. 19 to 22.....70% }
Concord Axles, loose collar.....5¢@6¢
Concord Axles, solid collar.....6¢@7¢
National Tubular Self-Oiling..... 33⅓%@33⅓&5%

Bag Holders.—See Holders, Bag.

Balances—

Spring Balances.....40%

No.	2000	20	30
Chatillon, ₩ doz	$0.80	0.95	1.75 net

Chatillon Straight Balances.....40%
Chatillon Circular Balances.....50&10%

Bars.

Crow—
Cast Steel.....₩ ℔ 4½¢
Iron, Steel Points..... ₩ ℔ 3½¢

Basins, Wash—

Standard Fiberware, No. 1, 10½-inch, $2; 12-inch, $2.25; 13½-inch, $2.75; 15-inch, $3.25.

Beams, Scale—

Scale Beams, List Jan. 12, '82...50&10@ 50&10&5%
Chatillon's No. 1.....40%
Chatillon's No. 2.....50%
Custer's.....33⅓%

Beaters, Egg, &c—

Keystone, P.D.&C., Each, No. 1, $1; No. 2, $2.....20 %
Dover.....₩ doz $1.50
Duplex (Standard Co.).....₩ doz $1.25
Rival (Standard Co.).....₩ doz $1.00
Duplex Extra Heavy (Standard Co.)... ₩ doz $3.60
Bryant's.....₩ gro $14.00
Double (H. & R. Mfg. Co).....₩ gro $16.20
Easy (H. & R. Mfg. Co.).....₩ gro $14.00
Triple (H. & R. Mfg. Co.).....₩ gro $16.20
Spiral (H. & R. Mfg. Co.).....₩ gro $4.50
Paine, Diehl & Co.'s.....₩ gro $24.00

Bells—

Cow—
Common Wrought.....60&10%
Western.....20&10%
Western, Sargent's list.....70&10%
Kentucky, "Star".....20&10%
Kentucky, Sargent's list.....70&10%
Dodge, Genuine Kentucky.....70@70&10%
Texas Star.....50&10@50&10&5%
Call.....40@40&5%
Farm Bells.....₩ ℔ 3¢@3½¢
Steel Alloy Church and School Bells..40%

Door—
Gong, Abbe's.....33⅓&10%
Gong, Yankee.....45&10%
Gong, Barton's.....40&10@50%
Crank, Taylor's.....25&10%
Crank Brooks'.....50&10&2%
Crank Cone's.....10%
Crank, Connel's.....20&10%
Lever, Sargent's.....60&10%
Lever, Taylor's Bronzed or Plated....net
Lever, Taylor's Japanned.....25&10%
Lever, R. E. M. Co.'s.....50&10&2%
Pull, Brook's.....50&10&2%
Pull, Western.....25&10%

Electric,
Wollensak's.....20%
Bigelow & Dowse.....20%
Taylor's.....20%

Hand—
Light Brass.....75&10%
Extra Heavy.....65&10%
White Metal.....60&10&10%
Silver Chime.....33⅓&10%
Globe (Cone's Patent).....25&10@35%

Bellows—

Blacksmiths'.....60&5@65%
Molders'.....40@40&10%
Hand Bellows.....40&10@50%

Belting, Rubber—

Common Standard.....70@70&5%
Standard.....60&10&10@70%
Extra.....50&10@60%
N.Y.B.&P.Co., Carbon...50&5@50&10&5%
N.Y.B.&P.Co., Diamond....40&5@40&10%

Bench Stops—See Stops, Bench.

Benders, Upsetters, Tire.

Stoddard's Lightning Tire Upsetters..15%
Detroit Perfected Tire Bender.....15%

Bits—

Auger, Gimlet, Bit Stock, Drills, &c., see Augers and Bits.

Bit Holders—See Holders.

Blind Adjusters—See Adjusters, Blind.

Blind Fasteners—See Fasteners, Blind.

Blind Staples—See Staples, Blind.

Blocks—

Ordinary Tackle, list May 20, 1889... See Trade Report.
Cleveland Block Co., Mal. Iron.....50%
Moore's Novelty, Mal. Iron.....50%

Boards, Stove.

Wood Lined "Crystal".....50%
"Embossed".....50%
"Oxidized".....45%
Paper Lined Zinc.....55%
"Crystal".....55%
"Embossed".....55%
"Oxidized".....45%

Bolts—

Carriage, Machine, &c.—
Com. list June 10, '84.....70&10&7½&2%
Genuine Eagle, list Oct., '84...75&10@80%
Phila. pattern, list Oct. 7, '84..80@80&10%
R.B.&W., old list.....70%
Machine, list Jan. 1, 1890..... 75&10@75&10&5%
Bolt Ends, list Jan. 1, 1890..... 75&10@75&10&5%

Door and Shutter—
Cast Iron Barrel, Square, &c..70@70&10%
Cast Iron Shutter Bolts.....70@70&10%
Cast Iron Chain (Sargent's list)....65&10%
Ives' Patent Door Bolts.....60%
Wrought Barrel.....70@70&10%
Wrought Square.....70@70&10%
Wr't Shutter, all Iron, Stanley's..60&10%
Wr't Shutter, Brass Knob, " ..40&10%
Wr't Shutter, Sargent's list.....60&10%
Wr't Sunk Flush, Sargent's list...55&10%
Wr't Sunk Flush, Stanley's list...50&10%
Wr't B.K.Flush. Com'n " ....55&10%

Stove and Plow—
Stove.....60%
Plow.....60&5%
R. B. & W., Plow.....55%

Tire—
Common, list Feb. 28, '83.....65%
Port Chester Bolt and Nut Company:
Empire, list Feb 28, '83.....65%
Keystone, Philadel., list Oct. '84....80%
Norway, Phila., list Oct. '84.....75%
American Screw Company:
Norway, Phil., list Oct. 16, '84.....75%
Eagle, Phil., list Oct. 16, '84.....80%
Philadel., list Oct. 16, '84.....80%
Bay State, list Feb. 28, '83.....65%
R.B.&W., Philadel., list Oct. 16, '84....80%

Borers, Tap.

Common and Rind.....20&10%
Ive's Tap Borers.....33⅓&5%
Enterprise Mfg. Co.....50&10&30%
Clark's.....33⅓&35%
Borax.....₩ ℔ 9½@10½¢
Boring Machines—See Machines, Boring.

Bow Pins—See Pins, Bow.

Boxes, Wagon.

Per ℔.....2¾¢

Braces.—

American Bit Brace Co.:
Nos. 10, 12, 20.....60&10%
Nos. 11, 21, 24, 27.....70&10%
Nos. 22, 23, 25.....60&10&5%
Nos. 13, 26, 30, 37.....70&10&5%
Ball Braces, net.....$1.12 to $1.25¢
Amidon's
Barker's Imp'd Plain.....75&10@80%
Barker's Imp. Nickeled.....65&10@70%
Ratchet.....75&10@80%
Eclipse Rachet.....60%
Globe Jawed.....40@40&10%
Corner Brace.....40@40&10%
Universal, 8 in., $2.10 10 in.....$2.25
Buffalo Ball.....$1.10@$1.15
Barber's,
Nos. 15 to 16.....50%
Nos. 30 to 33.....50%
Nos. 40 to 63.....50&10%
Barker's,
Nos. 8, 10 and 12.....75&10@80%
Plated, Nos. 8, 10 and 12....65&10@70%
Bartholomew's,
Nos. 25, 27 and 30.....50&10@60&5%
Nos. 117, 118, 119.....70&70&5%
Common Ball, American.....$1.00@$1.10
Fray's Genuine Spofford's..50&5@50&10%
Fray's No. 70 to 120, 81 to 123, 207 to 414 50&10%
Ives' New Haven Novelty.....70@70&5%
New Haven Ratchet.....60&5@60&10%
Barber Ratchet.....60&5@60&10%
Barbers.....60&5%
Spofford.....60&5@60&10%
Osgood's Ratchet.....40&10@50%
P. S. & W. Co., Peck's Patent.....60%

Brackets—

Shelf plain, Sargent's list, 55&10@55& 10&10%
Shelf, fancy, Sargent s list, 60&10@60 &10&10%
Reading, plain.....50&10@60&10&5%
Reading, Rosette.....60&10@60&10&10%

Bright Wire Goods—See Wire.

Broilers—

Heals' Self-	Inch.....	9	10	9x11
Basting.	Per doz...	$4.50	5.50	6.50

New Haven.....50%

Buckets, Well.

Galvanized—
Hill's.....₩ doz, 12 qt, $4.25; 14 qt, $5.3(
Iron Clad.....₩ doz. 14 qt, $4.25@$4.5(
Helwig's Flat Iron Band.....$4.25@4.5(
Helwig's Wired Top....₩ doz $4.00@4.25

Bull Rings—See Rings, Bull.

Butcher's Cleavers—See Cleavers Butchers'.

Butts—

Brass—
Wrought Brass.....75&10@80%
Cast Brass, Tiebout's.....50%
Cast Brass, Corbin's, Fast.....33⅓&10%
Cast Brass, Loose Joint.....33⅓&10%

Cast Iron—
Fast Joint, Narrow.....50&10&5@60%
Fast Joint, Broad.....50&10@60%
Loose Joint.
Loose Joint, Japanned.
Loose Joint, Jap. with Acorns.
Parliament Butts.
Mayer's Hinges.
Loose Pin, Acorns.
Loose Pin, Acorns, Japanned.
Loose Pin, Acorns, Japanned, Plated Tips.
.70&5@ 70&10%

Wrought Steel—
Fast Joint, Narrow.
Fast Joint, Lt. Narrow.
Fast Joint, Broad.
Loose Joint, Broad.
Table Butts, Back Flaps, &c.....
Inside Blind, Regular.
Inside Blind, Light.
Loose Pin.
.70&5@ 70&10%
Bronzed Wrought Butts. 50

Calipers—See Compasses.

Calks, Toe—

Gautier.....₩ ℔ 5½@6¢
Dewicks (Burke).....₩ ℔ 5½@6¢

Can Openers—See Openers, Can.

Cards—

Horse & Curry.....10&10&10&10%
Cotton.....10&10&10%
Wool.....10&10&10%

Carpet Stretchers—See Stretchers Carpet.

Carpet Sweepers—See Sw Carpet.

Cartridges—See Ammunition.

Casters—

Bed..... } Brass....55&55&10%
Plate..... } Others...60@60&10%
Shallow Socket.....
Deep Socket.....40&10%
Yale Casters, list May, 1884...30&10&40%
Yale, Gem.....60@60&5%
Martin's Patent (Phœnix).....45&10&50%
Payson's Anti-friction.....60@60&10%
Giant Truck Casters.....30%
Stationary Truck Casters.....50&10%
Socket Truck Casters.....50%

Cattle Leaders—See Leaders, Cattle.

Chain—

Trace, Wagon and Fancy Chains, List revised April 21, 1890.....50& 10@60%

American Coil, in cask lots,

3-16	¼	5-16	⅜	7-16	½	⅝	¾
$7.75	5.45	4.55	4.00	3.65	3.50	3.40	3.30

Less than cask lots, add ¼¢@½¢ ₩ ℔.
German Coil, list of June 20, 1887 50&10&5@60%
German Halter Chain, list of June 20, 1887.....50&10&5@60%
Covert Halter.....60&2%
Covert Traces.....35@2%
Covert Heel Chain.....50&2%
Oneida Halter Chain.....60@60&5%
Galvanized Pump Chain.....₩ ℔ 5½@6¢
Jack Chain, Iron.....75&10@80%
Jack Chain, Brass.....75@75&10%

Chalk—

White.....₩ gr 50¢
Red.....₩ gr 70¢
Blue.....₩ gr 85¢
See also Crayons.

Chalk Lines—See Lines.

Chisels—

Socket Framing and Firmer.
P. S. & W.
New Haven.
Witherby.
Mix.
Ohio Tool Co.
..75 @ 75&10
Douglass.....75@75&5%
Buck Bros.....30%
Merrill.....60&10@60&10&5%
L. & I. J. White.....30@30&5%

Tanged and Miscellaneous.
Tanged Firmers.....40&10@50%
Butchers'.....$4.75@5.0(
Spear & Jackson's.....$5 to $
Buck Bros.....30%
Cold Chisels, ₩ ℔.....15@16%

Chucks—

Beach Pat.....each, $8.00.....20%
Morse's Adjustable, each, $7.00, 20@20&5%
Danbury.....each, $6.00, 30@30&5%
Syracuse, Bals Pat.....25%
Skinner's Patent Chucks.
Combination Lathe Chucks.....33⅓&%
Universal Lathe Chucks.....40%
Independent Lathe Chucks.....40%
Drill Chucks.....15%
Union Mfg. Co.,
Victor.....$8.50, 25%
Combination.....40%
Universal.....40%
Independent.....40%

Churns.

Tiffin Union No. 1, 5 gallon...$3.25 each
Tiffin Union No. 2, 7 gallon...$3.75 each
Tiffin Union No. 3, 10 gallon...$4.25 each

Clamps—

R. I. Tool Co.'s Wrought Iron.....25%
Adjustable, Cincinnati.....15&10%
Adjustable, Hammers.....15%
Adjustable, Stearn's.....30@30&10%
Stearn's Adjustable Cabinet and Corner.....30@30&10%
Cabinet, Sargent's.....60&&10%
Carriage Makers', Sargent's.....70&10%
Carriage Makers', P., S. & W. Co..40&10%
Eberhard Mfg. Co.....40&5@40&10%
Warner's.....40&10@40&10&5%
Saw Clamps, see Vises. Saw Filers'.
Carpenters', Cincinnati.....25&10%

Cleavers.

Butchers'.
Bradley's.....25@30%
L. & I. J. White.....20&5%
Beatty's.....40@40&5%
New Haven Edge Tool Co.'s.....40%
P., S. & W.....33⅓&5@33⅓&10%
Foster Bros.....30%
Schulte, Lohoff & Co.....40@40&5%

Clips—

Norway, Axle, ¼ & 5-16.....55&5&5%
2nd grade Norway Axle, ¼ & 5-16 65&5%
Superior Axle Clips.....66⅔&5&70%
Norway Spring Bar Clips, 5-16...60&5&5%
Wrought-Iron Felloe Clips.....₩ ℔, 5½¢
Steel Felloe Clips.....₩ ℔, 5¢
Baker Axle Clips.....$2½

Cloth and Netting, Wire—See Wire, &c.

Cockeyes.....50%

Cocks, Brass.

Hardware list.....50&2%

Coffee Mills—See Mills, Coffee.

Collars, Dog, &c.

Medford Fancy Goods Co.....40&10%
Embossed, Gilt, Pope & Steven's list 30&10%
Leather, Pope & Steven's list.....40%
Brass, Pope & Steven's list.....40%
Chapman Mfg. Company....50&10@60%

Combs, Curry.

Fitch's.....50&10@50&10&10%
Rubber, per doz $10.00.....20%
Perfect.....50%

Compasses, Dividers, &c.—

Compasses, Calipers, Dividers.70@70&10%
Bemis & Call Co.'s
Dividers.....60&5%
Compasses & Calipers.....50&5%
Wing and Inside or Outside.....50&5%
Double.....60%
(Call's Pat. Inside).....30%
Excelsior.....50%
J. Stevens & Co.'s.....25&10%
Starrett's
Spring Calipers and Dividers....25&10%
Lock Calipers and Dividers.....25%
Combination Dividers.....25%

Coopers' Tools—See Tools, Coopers'.

Cord, Sash—

Common.....₩ ℔ 10@11¢
Patent, good quality.....₩ ℔ 13@13½¢
White Cotton Braided, fair...₩ ℔ 28@29¢
Common Russia Sash.....₩ ℔ 13½¢
Patent " " .....₩ ℔ 15¢
Cable Laid Italian Sash.....₩ ℔ 22@23¢
Indian Cable Laid " ... .₩ ℔ 13¢
Silver Lake—
A Quality, White, 50¢.....10&10&5%
A Quality, Drab, 55¢.....10&10&5%
B Quality, White, 50¢.....28@30%
B Quality, Drab, 55¢.....31@33%
C Quality, White (only).....26½@28¢
Sylvan Spring, Extra Braided, White, 34¢
Sylvan Spring, Extra Braided, Drab..30¢
Semper Idem, Braided, White.....30¢
Egyptian, India Hemp, Braided.....25¢
Samson—
Braided, White Cotton, 50¢...30@30&5%
Braided, Drab Cotton, 55¢....30@30&5%
Braided, Italian Hemp, 55¢...30@30&5%
Braided, Linen, 80¢.....30@30&5%

Corkscrews—See Screws, Cork.

Corn Knives and Cutters—See Knives, Corn.

Crackers, Nut—

Table (H. & B. Mfg. Co.).....40%
Blake's Pattern.....₩ doz $2.00, 10%
Turner & Seymour Mfg. Co.....50%

Cradles—

Grain.....50&5&2@50&10&2%

Crayons.

White Crayons, ₩ gr, 12¢@12½¢.....10%
D. M. Stewart Mfg. Co., Metal Workers, ₩ gr, $2.50.....25%
D. M. Stewart Mfg. Co., Rolling Mill, ₩ gr, $2.50.....25%
See also Chalk.

Crow Bars—See Bars, Crow.

Curry Combs—See Combs, Curry.

Curtain Pins—See Pins Curtain.

Cutters—

Meat.
Dixon's ₩ doz.....40&5%
Nos.... 1 2 3 4
$14.00 $17.00 $19.00 $30.00
Woodruff's ₩ doz.....40&5%
Nos.... 100 150
$15.00 $18.00
Hales Pattern ₩ doz.....70@70&5%
Nos.... 11 12 13
$27.00 $33.00 $45.00
American.....50%
Nos.... 1 2 3 4 5
Each....$5 $7 $10 $25 $50 $60
Enterprise.....30%
Nos.... 10 12 22 32 42
Each....$3 $2.50 $4 $6 $12
Great American Meat Cutter.....30%
Nos.... 112 116 118 120 122
Each....$2.00 $2.75 $3.00 $2.50 $4.00
Miles' Challenge ₩ doz.....45@45&10%
Nos.... 1 2 3
$22.00 $30.00 $40.00
Home No. 1.....₩ doz, $26.00, 55&10%
Draw Cut, each:
Nos...5 2 6 8
$50 $75 $80 $225.....20@25%
Great American.....30%
Beef Shavers (Enterprise).....20&10@30%
Little Giant.....50%
Chadborn's Smoked Beef Cutter, ₩ doz $66.00

Tobacco.
Champion.....20&10@30%
Wood Bottom.....₩ doz $5.00@$5.25
All Iron.....₩ doz $4.25
Nashua Lock Co.'s...₩ doz, $18.00 50@55%
Wilson's.....55%
Sargents's.....₩ doz, $24, 55&10%
Acme.....₩ doz $20.00, 40%

Washer.
Smith's Pat.....₩ doz $12.00, 20&10&10%
Johnson's.....₩ doz $11.00, 33⅓%
Penny's. ₩ doz Pol. $14; Jap'd, $16.00, 55%
Appleton's.....₩ doz $10.00, 60&10%
Bonney's.....30&10%
Cincinnati.....25&10%

Cutlery—

Beaver Falls & Booth's.....33⅓%
Wostenholme.....$7.75 to $

Dampers, &c—

Dampers, Buffalo.....40&10%
Buffalo Damper Clips.....40&10%
Crown Damper.....40%
Excelsior.....40&10%

Diggers, Post Hole, &c.—

Samson Post Hole Digger, ₩ doz $36.00, 25%
Fletcher Post Hole Augers, ₩ doz $36, 20%
Eureka Diggers.....₩ doz $16.00@17.00
Leed's.....₩ doz $8.00@9.00
Vaughan's Post Hole Auger, ₩ doz $13.00@14.00
Kohler's Little Giant.....₩ doz. $18.00
Kohler's Hercules.....₩ doz. 15.00
Kohler' New Champion.....₩ doz. $9.00
Schniedler.....₩ doz. $18.00
Ryan's Post Hole Diggers..₩ doz $24.00
Cronk's Post Bars, ₩ doz $80.00, 50&5&50&10%
Gibbs Post Hole Digger, ₩ doz $30.00, 50¢
Imperial, ₩ doz $15.....45%

Dividers—

See Compasses.

Dog Collars—See Collars, Dog, &c.

Door Springs—See Springs, Door.

Drawers.

Money, ₩ doz.....$18&$20

Drawing Knives—See Knives, Drawing.

Drills and Drill Stocks—

Blacksmiths'.....each $1.75
Blacksmiths' Self-Feeding, each $7.50,20%
Breast, P. S. & W.....40&10%
Breast, Wilson's.....30&5%
Breast, Millers Falls.....each $3.00, 25%
Breast, Bartholomew's....each $2.50, 25&10&40%
Ratchet, Merrill's.....20@20&5%
Ratchet, Ingersoll's.....25%
Ratchet, Parker's.....20@20&5
Ratchet, Whitney's.....20&10%
Retchet, Weston's.....20@25%
Ratchet, Moore's Triple Action...25@30%
Ratchet, Curtis & Curtis.....30%
Whitney's Hand Drill, Plain, $11.00; Adjustable, $12.00.....20&10%
Wilson's Drill Stocks.....10%
Automatic Boring Tools.....$1.75@$1.85

Twist Drills—
Morse.....50&10&5%
Standard.....50&10&5%
Syracuse (Metal list).....50&10%
Cleveland.....50&10&5%
Williams.....50&10&10%
New Process.....50&10&5%

Drill Bits.—See Augers and Bits.

Drill Chucks.—See Chucks.

Dripping Pans-See Pans, Dripping.

Drivers, Screw.

Douglas Mfg. Co.....20@20&10%
Disston's.....10%
Buck Bros.....30%
Stanley R. & L. Co.'s
Varnished Handles.....65&10%
Black Handles.....60&10%
Sargent & Co.'s
No. 1 Forged Blade.....60&10&10%
Nos. 20, 30 and 60.....60%&10&10%
P. S. & W.....70 %
Knapp & Cowles No.1.....50&50&70%
No. 1 Extra.....60@60&10
Nos. 00 & 4.....50&5@50&10&5%
Stearns'.....25&10&5%
Gay & Parsons.....35%
Champion.....25&10%
Clark's Pat.....30@33⅓%
Crawford's Adjustable.....30%
Eilrich's Socket and Ratchet..25@25&10%
Allard's Spiral, new list.....25%
Kolb's Common Sense ₩ doz $6.00,25&10%
Syracuse Screw-Driver Bits....30&30&5%
Screw-Driver Bits.....₩ doz. 50&75¢
Screw-Driver Bits, Parr's.....₩ gro $6.25
Fray's Hol. Hdle. Sets. No. 3, $12.00, 25@25&10%
P. D. & Co.'s all Steel.....50%
Cincinnati.....25&10%
Brace Screw Drivers.....25&10%
Buck Bros.' Screw-Driver Bits.....%

Egg Beaters.—See Beaters, Egg.

Egg Poachers.—See Poachers, Egg.

Electric Bell Sets.—See Bells, Electric.

Emery.—

	No. 4 to 46 gr.	No. 54 to 150 gr.	Flour, CF F. FF.
Kegs, ₩ ℔	4½¢	5 ¢	2½¢
½ kegs, ₩ ℔	4¾¢	5¼¢	2¾¢
¼ kegs, ₩ ℔	5 ¢	5½¢	3 ¢
10-℔ cans, in case	6 ¢	6½¢	5 ¢
10-℔ cans, less than 10	10 ¢	10 ¢	7½¢

Enameled and Tinned Ware—See Ware, Hollow.

Escutcheon Pins—See Pins, Escutcheon.

Escutcheons.

Door Lock....Same dis as Door Locks.
Brass Thread.....60@60&10%
Wood.....25%

Expanded Metal.

List No. 5.

Lathing.....10%
Fencing, Painted Sheets.....20%
Netting, Painted Sheets.....20%
Door Mats, Galvanized.....25%
Window Guards, Paneled.....15%
Tree Guards, Paneled.....15%

Fasteners, Blind—

Mackrell's, ₩ doz. $1.00.....20@20&10%
Van Sand's Screw Pat., $15 ₩ gr..60&10%
Van Sand's Old Pat., $15.00 ₩ gr...55&10%
Washburn's Old Pattern, ₩ gr.....$9.00
Merriman's.....new list
Austin & Eddy No. 2008 ₩ gr.....$9.00
Security Gravity, ₩ gr.....$9.00

Faucets.—

Fenn's.....40%
Bohren's Pat. Rubber Ball.....25%
Fenn's Cork Stops.....33⅓%
Star.....60%
Frary's Pat. Petroleum.....40&5&2%
B. & L. B. Co.
West's Lock, Open and Shut Key...50%
Star, Metal Plug, new list.....40%
Lockport, Metal Plug, reduced list..60%
Metallic Key, Leather Lined....60&10@60&10&10%
Cork Lined.....70&5@70&10%
Burnside's Red Cedar.....50%
Burnside's Red Cedar, bbl lots....50&10%
John Sommers'
Peerless Best Block Tin Key.....40%
IXL, 1st quality, Cork Lined.....50%
Diamond Lock.....40%
Perfection, Fla. Red Cedar.....50%
Goodenough Cedar.....50%
Boss Metallic Key.....50%
Reliable Cork Lined.....60%
Western Pattern Cork Lined.....50%
Self-Measuring
Enterprise, ₩ doz $50.00.....20&10%
Lane's, ₩ doz $36.00.....25&10%
Victor, ₩ doz $36.00.....25&10%

Felloe Plates—See Plates, Felloe.

Fifth Wheels.—

Derby and Cincinnati.....45&5%
Brewster.....50&5%

Files—

Domestic—
Nicholson Files, Rasps, &c.....60&10@60&10&5%
Nicholson (X. F.) Files.....25%
Nicholson's Royal Files (Seconds).....75%
(extra prices on certain sizes)
Other makers, best brands 60&10@60&20%
Fair brands.....60&10&10@70&5%
Second quality.....70&10@75&10%
Nicholson's Horse Rasps....60&10@60&10&5%
Heller's Horse Rasps.....50&7½@50&10%
McCaffrey's Horse Rasps.....50&10%
Chelsea Horse Rasps, Hand Cut...50&10%

Imported—
Moss & Gamble....List, April 1, 1883, 15%
Butcher.....Butcher's list, 20%
Stubs.....Stubs list, 25@30%
Turton's.....Turton's list, 20@25%
Greaves' Horse Rasps..American list, 60%

Fixtures.

Grindstone—
Sargent's Patent.....70&10%
Reading Hardware Co.....30&10%
P., S. & W. Co.....50&10%

Fluting Machines—See Machines, Fluting.

Fluting Scissors—See Scissors, Fluting.

Fodder Squeezers—See Squeezers, Fodder.

Forks—

Hay, Manure, &c., Asso List.....70%
Hay, Manure, &c., Phila. List. 60@60&5%
Plated, see Spoons.

Frames—

Saw—
White Vermont.....₩ gro $9.00@10.00
Red, Polished and Varnished.....₩ doz $1.50, 25%

Screen, Window and Door—
Porter's Pat. Window and Door Frame. 33⅓&10%
Warner's Screen Corner Irons..33⅓@33⅓&10%
Stearns' Frames and Corners..25@25&10%

Freezers, Ice Cream—

White Mountain.....60@60&5%
Granite State.....65@65&5%
Arctic.....70@70&5%
American.....60%
Buffalo Champion.....65@65&5%
Shepard's Lightning.....65@65&5%
Gem.....65%
Blizzard.....70%
Double Action Crown.....60%
Crown.....60%
Star.....60
Peerless and Giant.....60&10
Zero and Pet.....65&1
Boss.....65&10&1
Keystone, P. D. & Co., each, $1.50....20%

Fruit and Jelly Presses—See Presses, Fruit and Jelly.

Fry Pans—See Pans, Fry.

Funnels.

Gersdorff's Perfection, Standard and Globe; Tin, 1 gro., 10 %; 2 to 5 gro., 20 %; 5 to 10 gro.....30 %
Copper, 1 to 6 doz., 15 %; 6 to 12 doz., 20 %; over 12 doz.....25 %

Fuse—₩ 1000 ft

Common Hemp Fuse, for dry ground.$2.70
Common Cotton Fuse, for dry ground 2.85
Single Taped Fuse, for wet ground..
Double Taped Fuse, for very wet gr. 4.85
Triple Taped Fuse, for very wet gr.. 5.60
Small Gutta Percha Fuse, for water. 7.50
Large Gutta Percha Fuse, for water.12.00

Gates, Molasses—

Stebbin's Pattern.....75&10@80%
Stebbin's Genuine.....60&10&10%
Stebbin's Tinned Ends.....40&10%
Chase's Hard Metal.....50&10%
Sush's.....20%
Lincoln's Pattern.....70@70&10%
Weed's.....20&10%
Boss, ₩ doz:
No. 1, $7; No. 2, $8; No. 3, $9; No. 4, $10.....60&10&10%

Gauges.

Marking, Mortise, &c.....60&10%
Starrett's Surface, Center and Scratch. 25&10%
Wire, low list.....10&10%
Wire, Wheeler, Madden & Co.....10%
Wire, Morse's.....25%
Wire, Brown & Sharpe's.....10@20%
Wire, P. S. & W. Co.....10&10%

Gimlets—

Nail and Spike.....50&10&5%
" Eureka " Gimlets.....40&10%
" Diamond " Gimlets.....₩ gr $5.00
Double Cut, Shepardson's.....45@45&5%
Double Cut, Ives'.....60@60&5%
Double Cut, Douglass'.....40&10%
" Bee," ₩ gr $12.....25@25&5%

Glue—

Le Page's Liquid.....25@25&5%
Upton's Liquid.....35%
Le Page & Co.'s Improved Process 25@25&5%

Glue Pots—See Pots, Glue.

Grease, Axle.

Fraser's.....Keg ₩ ℔ 4¢, Pail ₩ ℔ 5¢
Fraser's, in boxes.....₩ gr $9.50
Dixon's Everlasting, in bxs...₩ doz 1℔ $1.20; 2 ℔ $2.00
Dixon's Everlasting....10-℔ pails, ea. 35¢
Lower grades, special brands, ₩ gr $5.50@$7.00

Grindstones—

Small, at factory.....₩ ton $7.50@9.00

Grindstone Fixtures—See Fixtures, Grindstone.

Hack Saws—See Saws.

Hafts, Awl.

Sewing, Brass Fer. ₩ gr, $3.50.....45&10%
Pat. Sewing, Short. $1.00 ₩ doz.....40&10%
Pat. Sewing, Long.....₩ doz $1.20
Pat. Peg, Plain Top. ₩ gr $10.00...45&10%
Pat. Peg, Leather Top. ₩ gr $12.00.45&10%

Halters.

Covert's, Rope, ½-in. Jute.....50&2%
Covert's, Rope, ½-in. Hemp.....50&2%
Covert's Adj. Rope Halters.....40&2%
Covert's Hemp Horse and Cattle Tie. 50&2%
Covert's Jute Horse and Cattle Ties. 60&10&2%
Covert's Adj. Web Halters.....35&2 %

Hammers—

Handled Hammers—
Maydole's, list Dec. 1, '85.....25&10@35%
Buffalo Hammer Co.,
Humason & Beckley
Atha Tool Co.
Fayette R. Plumb.....50@50&10%
C. Hammond & Son.
Hartford Hammer Co.
Verree.
Magnetic Tack, Nos. 1, 2, 3, $1.25, 1.50 & 1.75.....30&10%
Nelson Tool Works.....40&10%
Warner & Nobles.....20@25
Peck, Stow & Wilcox.....40%
Sargent's.....33⅓&10%

Heavy Hammers and Sledges—
3 ℔ and under.....₩ ℔ 40¢
3 to 5 ℔.....₩ ℔ 38¢ } 70@70&10%
Over 5 ℔.....₩ ℔ 30¢
Wilkinson's Smiths.....10½¢@11¢₩ ℔

Handcuffs and Leg Irons—See Police Goods,

Handles—

Atkins' No. 1 Loop, ₩ pair, 28¢; No. 2, 13¢; No. 6, 14¢; No. 2 and No. 4 Reversible, 18¢.

Cross-Cut Saw Handles—
Boynton's Loop Saw Handles, 50¢....60%
Champion.....15%

Iron, Wrought or Cast—
Door or Thumb.

Nos.	0	1	2	3
Per doz.	$0.90	1.00	1.18	1.35

1.50
60&10&1

Boggin's Latches.....₱ doz 30@35¢
Bronze Iron Drop Latches..₱ doz 70¢ net
Jap'd Store Door Handles—Nuts, $1.62; Plate, $1.10; no Plate, $0.88 ..... net
Barn Door, ₱ doz $1.40..... 10&10%
Chest and Lifting.....70%

Wood—

Saw and Plane.....40&10@40&10&5%
Hammer, Hatchet, Axe, Sledge, &c...40%
Brad Awl.....₱ gr $2.00
Hickory Firmer Chisel, ass'd. ₱ gr 4.50
Hickory Firmer Chisel, large. ₱ gr 5.00
Apple Firmer Chisel, ass'd...₱ gr 5.00
Apple Firmer Chisel, large...₱ gr 6.00
Socket Firmer Chisel, ass'd...₱ gr 3.00
Socket Framing Chisel, ass'd. ₱ gr 5.00
} 40@ 40&10
J. S. Smith & Co.'s Pat File.....50-
File, assorted.....₱ gr 9 75
Auger, assorted.....₱ g' 5.00
Auger, large.....₱ gr 7.00
} 40@ 40&10
Pat. Auger, Ives'.....30&10%
Pat. Auger, Douglass.....₱ set $1.2[illegible]
Pat. Auger, Swan's.....₱ set $1.0[illegible]
Hoe, Rake, Shovel, &c. .....5%@10%

Hangers—

Barn Door, old patterns...60&10&10@70%
Barn Door, New England...60&10&10@70
Samson Steel Anti-Friction.....55%
Orleans Steel.....55%
Hamilton Wrought Wood Track.....55%
U. S. Wood Track 65%
Champion.....60&10%
Rider and Wooster, Medina Mfg. Co.'s list.....70%
Climax Anti-Friction.....60%
Climax Anti-Friction for Wood Track55%
Zenith for Wood Track.....55%
Reed's Steel Arm.....50%
Challenge, Barn Door.....50%
Sterling's Imp'ved (Anti-Friction).65&10%
Victor, No. 1, $15.00; No. 2, $16.50; No. 3, $18.00.....50&2%
Cheritree .....50&10%
Kidder's .....60&10@60%
The Boss.....60&10%
Best Anti-Friction.....60&10%
Duplex (Wood Track).....60&10&5%
Terry's Pat., ₱ doz pr. 4 in, $10.00; 5 in. $12.00.....50&10%
Terry's Steel Anti-Friction Leader 50&10%
Terry's Steel Anti-Friction Ideal..50&10%
Cronk's Patent, Steel Covered.....50@5%
Wood Track Iron Clad, ₱ ft, 10¢.....50 &15@60%
Carrier Steel Anti-Friction.....60&10%
Architect, ₱ set $6.00.....20%
Eclipse.....20&10%
Felix, ₱ set $4.50.....20%
Richards'.....30@30&10%
Lane's Standard.....50&5@50&10%
Lane's New Standard.....50@5%@5%
Ball Bearing Door Hanger..20&10@25&10%
Warner's Pat.....20&10@20&10&10%
Stearns' Anti-Friction.20&10@20&10&10%
Stearns' Challenge.....25&10@25&10&10%
Faultless.....40@40&5%
American, ₱ set $6.00.....20&10%
Rider & Wooster, No. 1, 62½¢; No. 2, 75¢.....40%
Paragon, Nos. 1, 2 and 3.....40&10%
Cincinnati.....25&10%
Paragon, Nos. 5, 5½, 7 and 8.....20&10%
Crescent.....60@60&10%
Nickel Cast Iron.....50%
Nickel, Malleable Iron and Steel.....40%
Scranton Anti-Friction Single Strap33⅓%
Wild West, 4 in. Wheel, $15.00; 5 in. Wheel, $21.00.....45%
Star .....40&10@40&10&5%
May .....50&5@50&10%
Barry, $6.00.....40&10%

Harness Snaps—See Snaps.

Hatchets—

American Axe and Tool Co.
Blood's
Hunt's
Hurd's
Mann's
Peck's
Underhill's.....
Buffalo Hammer Co.....
Fayette R. Plumb.....
C. Hammond & Son.....
Kelly's.....
Sargent & Co.....
P., S. & W. Co.....
Ten Eyck Edge Tool Co.....
} 40 & 10 @ 50&5%
Collins.....10%
Schulte, Lohoff & Co. .....50@50&5%

Hay and Straw Knives—See Knives.

Hinges—

Blind Hinges—

Parker.....75&2%
Palmer.....50&5&10%
Seymour .....70&2%
Nicholson.....45&10%
Buffer 50%
Clark's, Nos. 1, 3, 5, 40 and 50 .....75&10&5@80%
Clark's Mortise Gravity.....50%
Sargent's, Nos. 1, 3, 5, 11, 13 .....75&10@55&10&5%
Sargent's, No. 12.....77&10&10%
Reading's Gravity.....75&10@75&10&5%
Shepard's
Noiseless.....75&10%
Niagara.....80%
Buffalo.....80%
Clark's Genuine Pattern.....80%
O. S., Lull & Porter.....75&10%
Acme, Lull & Porter.....75%
Queen City Reversible...70&10&5@75%
Clark's Lull & Porter, Nos. 0, 1, 1½, 2, 2½, 3.....75&10&2½%
North's Automatic Blind Fixtures, No. 2, for Wood, $9.00; No. 3, for Brick, $11.50. .....10%

Gate Hinges—

Western.....₱ doz $4.40, 60%
N. E. .....₱ doz $7.00, 55%
N. E. Reversible.....₱ doz $5.20, 55&10%
Clark's, Nos. 1, 2, 3.....60&10&5%
N. Y. State.....₱ doz $5.00, 55&10%
Automatic .....₱ doz $12.50, 50%
Common Sense.....₱ doz pair $4.50, 50%
Seymour's.....45&10%
Shepard's .....60&10&5%
Reed's Latch and Hinges. ₱ doz $12.00, 50%

Spring Hinges—

Union Spring and Blank Butts.....40%
Gear's Spring Hinge Co.'s list, March 886 .....20%
Acme.....30%
J. S. .....25&10%
Empire and Crown.....20%
Hero and Monarch 55%
American, Gem, and Star.....20%
Oxford.....20%
Barker's Double Acting..... 25%
Union Mfg. Co.....25%
Sommer's.....30%
Buckman's.....15@20%
Chicago.....30%
Wiles'.....10%
Devore's.....40%
Rex.....40%
Royal.....60%
Reliable.....60%
Champion.....60%
Bardsley's Patent.....40%
Stearn's.....50&10%

Wrought Iron Hinges

Strap and T.....75&10%
Screw Hook and Strap..... { 6 to 12 in., ₱ D. 4 2-10¢ / 14 to 20 in., ₱ D. 3 7-10¢ / 22 to 36 in., ₱ D. 3 2-10¢
Heavy Welded Hook..... { 6 to 12 in., ₱ D. 4 2-10¢ / 14 to 20 in., ₱ D. 3 7-10¢ / 22 to 36 in., ₱ D. 3 2-10¢
Screw Hook and Eye { ⅜ in., ₱ doz $1.50 / ½ in., ₱ doz $2.45 / ⅝ in., ₱ doz $3.80 } 10%
Rolled Blind Hinges, Nos. 32 and 34 .....50&10%
Rolled Blind Hinges, Nos. 232 and 234 .....55&10%
Rolled Plate.....70&10%
Rolled Raised.....70&10%
Plate Hinges "Providence" { 8, 10 & 12 in., ₱ D. .....5¢ / over 12 in., ₱ D. ...4¢

Hoes—

Eye—

D. & H. Scovil.....20%
Lane's Crescent Planters Pattern..45&5%
Lane's Razor Blade, Scovil Pattern ..30%
Maynard, S. & O. Pat.....45&5%
Sandusky Tool Co., S. & O. Pat. } 50&10&5 @60%
Am. Axe and Tool Co., S. & O. Pat. }
Chattanooga Tool Co., S. & O. Pat..60& 5@60&10%
Grub .....60&10%

Handled—

Garden, Mortar, &c.....70%
Planter's, Cotton, &c.....70%
Warren Hoe.....60%
Magic.....₱ doz $4.00

Hog Rings and Ringers—See Rings and Ringers.

Hoisting Apparatus—See Machines, Hoisting.

Hollow-Ware—See Ware, Hollow.

Holders.

Bag.

Sprengie's Pat.....₱ doz $18.....60%

Bit.

Extension,
Barber's, ₱ doz $15.00.....40@40&10%
Ives, ₱ doz $20.00.....60&5@60&10%
Diagonal.....₱ doz $24.00, 40%
Angular.....₱ doz $24.00, 40&5%

File and Tool—

Balz Pat.....₱ doz $4.00; 25%
Nicholson File Holders..... 20%
Dick's Tool Holder.....20%

Hooks—

Cast Iron—

Bird Cage, Sargent's list.....
Bird Cage, Reading.....
Clothes Line, Sargent's list..
} 60&10&10%
Clothes Line, Reading list. 60&10@60&10&10%
Ceiling Sargent's list. .....55&10&10%
Harness, Reading list..55&10@55&10&10%
Coat and Hat, Sargent's list. 55&10@60&10%
Coat and Hat, Reading.50&10@50&10&10%

Wrought Iron—

Cotton.....₱ doz $1.25
Cotton Pat. (N.Y. Mallet & Handle W'ks). 30%
Tassel and Picture (T. & S. Mfg. Co.)...50%
Wrought Staples, Hooks, &c. See Wrought Goods.

Wire—

Wire Coat and Hat, Gem, list April, 1886.....50%
Wire Coat and Hat, Miles', list April, 1886.....50%
Indestructible Coat and Hat.....45%
Wire Coat and Hat, Standard.....45%
Handy Hat and Coat.....50&10%
Steady Ceiling Hooks.....50&10%
Belt.....80@80&10%
Atlas, Coat and Hat.....60%

Miscellaneous.

Grass, No. 2, $2.00; No. 3, $2.25; No. 4, $2.50
Nolin's Grass.....₱ doz $2.25
Bush.....55@60%
Whiffletree—Patent.....55%
Hooks and Eyes—Malleable Iron. 70@70&10%
Hooks and Eyes—Brass.....60&10&10%
Fish Hooks, American..... 50%
Bench Hooks ..... See Bench Stops.

Horse Nails—See Nails, Horse.

Horse Shoes—See Shoes, Horse.

Hose, Rubber—

Competition.....75@75&5%
Standard.....60&10&5@60&10&10%
Extra.....50&10@60%
N. Y. B. & P. Co., Para..... .25&5%
N. Y. B. & P. Co., Extra..... .40@40&5%
N. Y. B. & P. Co., Dundee....50&10 @ 60%

Huskers—

Blair's Adjustable.....₱ gr $8.00
Blair's Adjustable Clipper.....₱ gr 7.00
Hubbard's Solid Steel.....₱ gr 4.50

Indurated Fiber-Ware—See Ware, Indurated Fiber.—

Irons.

Sad—

From 4 to 10, at factory ...₱ 100 ℔, $2.30@$2.40
Self-Heating.....₱ doz $9.00 net
Self-Heating, Tailors'....₱ doz $18.00 net
Mrs. Pott's Irons.....40@40&10%
Enterprise Sad Irons.....40@40&10%
Cold Handle Sad Irons .....40&10@50%
Ideal Irons new list.50&10@50 & 10&10%
Salamander, Irons.....25%
B. B. Sad Irons, ₱ ℔.....3 @3½¢
Combined Fluter and Sad Iron, ₱ doz, $15.00.....15%
Fox Reversible, Self-Fluter ₱ doz $24.00
Chinese Laundry (N.E. Butt Co.) 8½¢, 15%
New England.....5¢, 15%
Mahony's Troy Pol. Irons.....25%
Sensible.....20@20&5%
National Self-Heating.....30%

Soldering—

Soldering Coppers.....₱ ℔ 22 @ 23¢
Covert's Adjustable, list Jan. 1, 1886. 35&2%

Irons, Pinking, per doz., 65¢.

Jack Screws—See Screws.

Jacks, Wagon.

Daisy.....33⅓%
Victor.....33⅓%

Kettles— Spun. Stamped.
Brass, 7 to 17 in., ₱ ℔.... 24¢ 22 ¢
Brass larger than 17 in., ₱ ℔..... 26¢ 24½¢
Enameled and Tea—See Hollow-Ware.

Keys—

Lock Asso'n list Dec. 30, 1886...50&10@ 60&5%
Eagle, Cabinet, &c .....33⅓&2%
Hotchkiss' Brass Blanks.....40%
Hotchkiss, Copper and Tinned.....40%
Hotchkiss' Pad. and Cab.....35%
Ratchet Bed Keys.....₱ doz $4.00, 15%
Wollensak Tinned.....50&10%

Knife Sharpeners—See Sharpeners, Knife.

Knives.

Butcher, Shoe, &c—

Wilson's Butcher Knives.....25@30%
Ames' Butcher Knives.....25%
Foster Bros.' Butcher, &c.....40%
Nichols' Butcher Knives.....40&10%
Ames' Shoe Knives.....20@25%
Ames' Bread Knives. ₱ doz $1.50, 15@20%
Moran's Shoe and Bread.....20%
Hay and Straw ..... See Hay Knives.
Table and Pocket..... See Cutlery.
Corn, Auburn Mfg. Co. Western Pat.,
Corn, Auburn Mfg. Co. Crescent.....$3.50

Corn—

Bradley's.....10%
Wadsworth's.....25%

Drawing—

Witherby.....
P. S. & W .....
Mix .....
New Haven.....
} ..75 @ 75&10 %
Merrill .....60&10@60&10&5%
Douglas.....75@75&5%
Watrous.....15&10@25%
L. & I. J. White.....20&5%
Bradley's.....35%
Adjustable Handle.....25@33⅓%
Wilkinson's Folding..... 25@25&5%

Hay and Straw—

Lightning, Mfrs', price ₱ doz $18.00, 25% But jobbers cut this price freely, often selling at $8 @ $8.50.
Wadsworth's.....40@7½@40&10%
Carter's Needle.....₱ doz $11.00@$11.50
Heath's.....₱ doz $13.00@13.50
Auburn Hay, Com. and Spear Point..50%
Auburn, Straw.....40%
Nolin's Hay .....₱ doz. $8.00 @ $9.00

Mincing.

Am. (2d quality), ₱ gr., 1 blade, $7; 2 blades, $12; 3 blades, $18.....net
Lothrop's.....20&10%
Smith's, ₱ doz, Single, $2.00; Double, $3 40@45%
Knapp & Cowles.....50&10@60-
Buffalo Adjustable.....₱ doz $3.00 25%
Buffalo Double Adj'table. ₱ doz $3.00 25%

Knobs—

Door Mineral.....60@65%
Door Por. Jap'd.....70@75%
Door Por. Nickel.....$2.00@2.25
Door Por. Plated, Nickel.....$2.00@2.25
Drawer, Porcelain.....60&10@60&10&10%
Hemacite Door Knobs.....40&10@50%
Yale & Towne Wood, list Dec., 1885..40%
Furniture Plain.....75¢ gro inch, 10%
Furniture, Wood Screws.....25&10%
Base, Rubber Tip.....70&10&5%
Picture, Judd's.....60&10&10@70%
Picture, Sargent's.....70&10%
Picture, Hemacite.....35&5%
Shutter, Porcelain.....65&10%
Carriage, Jap.....₱ gro 80¢, 60&10%
Bardsley's Wood Door, Shutter, &c..40%

Ladles,—
Melting, Sargent's.....55&10%
Melting, Reading.....35&10%
Melting, Monroe's Pat...₱ doz $4.00, 40%
Melting, P. S. & W.....35&10@40%
Melting, Warner's.....30%

Lanterns—

Tubular—

Plain with Guards, ₱ doz.....$4.00@4.25
Lift Wire, with Guards.....$4.50@4.75
Square Plain, with Guards....$4.00@4.25
Sq. Lift Wire, with Guards....$4.25@4.50
Without Guards, 25¢ ₱ doz less.

Miscellaneous.

Police, Small, $6.00; Medium, $7.25; Large, $9.75.....20@25%

Lawn Mowers—See Mowers, Lawn.

Leaders, Cattle.

Humason, Beckley & Co.'s.....70%
Sargent's.....60%@10%
Hotchkiss.....30%
Peck, Stow & W. Co.....60&10%

Lemon Squeezers—See Squeezers, Lemon.

Lifters, Transom.

Wollensak's:
Class 3 and 4, Bronzed Iron.....50%
Class 3 and 4, Bronze Metal.....25%
Class 3 and 4, Brass.....35%
Skylight Lifters.....35%
Crown, Eagle and Shield.....50%
Reiher's, list Aug. 1, 1889-
Bronzed Iron Rods.....50&10&10&2%
Brass, Real Bronze or Nickel Plate..30%
Excelsior.....50&10&2%
Shaw's.....50&10%
Payson's:
Universal.....60%
Solid Grip.....60%
Imperial.....50&10%

Lines—

Cotton and Linen Fish, Draper's.....50%
Draper's Chalk.....60%
Draper's Masons' Linen, 84 ft., No. 1, $1.25; No. 2, $1.75; No. 3, $2.25; No. 4, $2.75; No. 5, $3.25.....25%
Cotton Chalk.....55%
Samson, Cotton, No. 4, $2; No. 4½, $2.50; No. 5, $3.00 ..... 10%
Silver Lake, Braided, No. 0, $6.00; No. 1, $6.50; No. 2, $7.00; No. 3, $7.50 ₱ gro.....25%
Mason's Linen, No. 3½, $1.50; No. 4, $2.00; No. 4½, $2.50.
Mason's Colored Cotton.....45%
Wire Clothes. Nos. 12 16 20
100 ft. $4 00 $3 50 $3.00
Ventilator Cord, Samson Braided, White or Drab Cotton..₱ doz $7.50, 20%

Locks, &c.—

Cabinet—

Eagle, Gaylord Parker and Corbin... } List March, '84, rev Jan. 1, '85..33⅓&2%
Deltz, Nos. 36 to 39.....40%
Deltz, Nos. 51 to 63.....40%
Deltz, Nos. 86 to 96.....40&10%
Stoddard Lock Co.....30&33⅓%
"Champion" Night Latches.....40%
Barnes Mfg. Co.....40@40&10%
Eagle and Corbin Trunk.....25&2%
"Champion" Cab. and Combin...33⅓%
Yale.....net prices
Romer's.....25%

Door Locks, Latches, &c.

R. & E. Mfg. Co., list Mar. 20, 1889 } 60&10@60 &10&10
Mallory, Wheeler & Co., list July, '88 } Much lower net prices often made.
Sargent & Co., list Aug. 1, '88
Reading Hardware Co., list Feb. 2, '88,
Brittan, Graham & Mathes, list Jan. 1890.....60&10&10%
Perkins' Burglar Proof.....60&25%
Plate.....33⅓&2%
Barnes Mfg. Co.....40@40&10%
Yale.....net prices
Deltz Flat Key.....30%
L. & C. Round Key Latches.....30&10%
L. & C. Flat Key Latches.....33⅓&10%
Romer's Night Latches.....15%
Shepardson or U. S.....35%
Seed's N. Y. Hasp Lock.....25%

Padlocks—

List Dec. 23, '84.....75@75&10%
Brittan, Graham & Mathes.....75&10%
Yale Lock Mfg. Co.'s.....net prices
Eagle.....25&2%
Eureka, Eagle Lock Co.....40&2%
Romer's, Nos. 0 to 91.....30%
Romer's Scandinavian, &c., Nos. 100 to 505..15%
A. E. Deltz.....40%
Champon Padlocks.....40%
Hotchkiss.....30%
Star.....45%
Horseshoe.....₱ doz, $9.40, 40&10%
Barnes Mfg. Co.....40@40&10%
Nock's.....30%
Brown's Pat.....25%
Scandinavian.....90@90&10%
E. T. Fraim's Keystone Scandavian: Nos. 119, 120, 130 and 140.....90&10% Other Nos.....65%
Ames Sword Co. up to No. 150.....40%
Ames Sword Co. above No. 150.....50%
Slaymaker Barry & Co.
No. 41 line.....45&5%
No. 31 line .....60&5%
No. 21 line.....75@5%

Sash, &c.

Clark's, No. 1, $10; No. 2, $8 ₱ gr. .33⅓%
Ferguson's 33⅓%
Morris and Triumph, list Aug. 16, 1886, 60&2%
Victor.....60&10&2%
Walker's.....10%
Attwell Mfg. Co.....25&35%
Reading.....65%&10@65%&10&10%
Hammond's Window Springs.....40%
Common Sense, Jap'd, Cop'd and Br'zed.....₱ gr $4.00
Common Sense, Nickel Plated ₱ gr $10.00
Universal.....30%
Kempshall's Gravity.....60%
Kempshall's Model .....60@60&10%
Corbin's Daisy, list Feb. 15, 1886.....70%
Payson's Perfect.....60@60&10%
Hugunin's Sash Balances.....25&5&2%
Hugunin's New Sash Locks.....25&5&2%
Stoddard "Practical".....10%
Ives' Patent.....60&10@60&10&5%
Liesche's, Nos. 100 and 110, ₱ gr $8; 105, $10.00.....20&10%
Davis, Bronze, Barnes Mfg. Co.....50%
Champion Safety, list March 1, 1888 55@55&5%
Security.....70%
Buckeye.....₱ gro $4.80

Lumber Tools—See Tools, Lumber

Lustre—

Four-ounce Bottles....₱ doz, $1.75; ₱ gross.....$17.00

Machines.

Boring—

	Without Augers.	Upright.	Angular.	
Douglas	$5.50	$6.75		50%
Snell's, Nice's Pat.	5.50	6.75	40&10&10	
Jennings	5.50	6.75	45@45&10	
Other Machines	2.35	2.75		
Phillips' Patent with Augers	7.00	7 50		

Fluting.

Knox, 4½-inch Rolls.....$3.25 each } 35%
Knox, 6-inch Rolls.....$3.60 each }
Eagle, 3½-inch Roll, $2.15.....35%
Eagle, 5½-inch Roll, $2.85.....35%
Crown, 4½ in., $3.50; 6 in., $4.00; 8 in., $6.50 each 35%
Crown Jewel, 6 in .....$3.50 each, 35%
American, 5 in., $3.00; 6 in., $3.40; 7 in., $4.50 each.....35%
Domestic Fluter .....each, $1.50
Geneva Hand Fluter, White Metal ₱ doz $12, 25%
Crown Hand Fluter, Nos. 1, $15.00; $12.50; 3, $10.00.....30%
Shepard Hand Fluter, No. 85 ₱ doz $15 30 .....40%

Shepard Hand Fluter, No. 110 ₱ doz. $11.00.....40%
Shepard Hand Fluter, No. 95 ₱ doz $8.00.....40%
Clark's Hand Fluter, ₱ doz $15.00.....35%
Combined Fluter and Sad Iron, ₱ doz $15.00 .....30%
₱ doz $10.00 .....10%
Buffalo .....

Hoisting—
Moore's Hand Hoist, with Lock Brake.....20%
Moore's Differential Pulley Block.....40%
Energy Mfg. Co's.....25%

Mallets.
Hickory.....20&10@20&10&10%
Lignumvitæ.....20&10@20&10&10%
B. & L. Block Co., Hickory & L. V. 30@30&10%
Mattocks. Regular list..... .....60&10%

Measures—
Standard Fiberware, No. 1, peck, ₱ dozen, $4; ½-peck, $3.50.

Meat Cutters—See Cutters, Meat.

Mills.
Coffee—
Box and Side, List Jan. 1, 1888.....60&2%
American, Enterprise Mfg Co.20&10@30%
The Swift, Lane Bros..... .....20&10%

Mincing Knives — See Knives, Mincing.

Molasses Gates—See Gates, Molasses.

Money Drawers — See Drawers, Money.

Mowers, Lawn.
Leading makers.....60@60&10&5%
Other makers.....60&10&5@60&10&10%
Pennsylvania.....60%
Continental.....60%
New Model.....60&10&5%
New Quaker City.....60&10&5%
Great American.....60&10&5%

Muzzles—
Safety.....₱ doz, $3.00, 25 %

Nails.

Cut and Wire. See Trade Report.
Wire Nails, Papered.
Association list, July 15,'89..75@75&5%
Tack Mfrs.' list.....60&10&10%
Wire Nails, Standard Penny.
Card June 1, '89, base.....$2.70 @ $2.75
Horse—
Nos. 6 7 8 9 10
Ausable.... .28¢ 26¢ 25¢ 24¢ 23¢. 40&5&2%
Clinton, Fin.....11¢
Essex ....28¢ 26¢ 25¢ 24¢ 23¢. 25&10@25&10&10%
Lyra .....25¢ 23¢ 22¢ 21¢ 20¢. 40&10&5@50%
Snowden 25¢ 23¢ 22¢ 21¢ 20¢. 40&10&5@50%
Putnam.....23¢21¢ 20¢ 19¢ 18¢. 1000 ℔ in year 15%
Vulcan.....23¢ 21¢ 20¢ 19¢ 18¢..12½&5%
Northwest'n.25¢ 23¢ 22¢ 21¢ 20¢. 25@25&5%
Globe .....23¢ 21¢ 20¢ 19¢ 18¢...25&10%
Boston.....23¢ 21¢ 20¢ 19¢ 18¢. 20&5&5&2½%
A. C.....25¢ 23¢ 22¢ 21¢ 20¢. 25&10@33⅓&5%
C. B.-K.....25¢ 23¢ 22¢ 21¢ 20¢. 25&10@33⅓&5%
Champlain .28¢ 6¢ 25¢ 24¢ 23¢. 25&10&10%
New Haven..28 26¢ 25¢ 24¢ 23¢. 25&10@25&10&10%
Saranac.....23¢ 21¢ 20¢ 19¢ 18¢...30&10%
Champion ...25¢ 23¢ 22¢ 21¢ 20¢. 10&10&10%
Capewell.....28¢ 26¢ 5¢ 24¢ 23¢. 35&5@35&10%
Star.....23¢ 21¢ ve 19¢ 18¢. 10&10@10&12½%
Anchor.....23¢ 21¢ 20¢ 19¢ 18¢.....35%
Western.....23¢ 21¢ 20¢ 19¢ 18¢...40&10%
Empire Bronzed.....14 ₱ ℔.
Picture—
Brass Head, Sargent's list.....50&10&10%
Brass Head, Combination list.....50&10%
Porcelain Head, Sargent's list.50&10&10%
Porcelain Head, Combination list..40&10%
Niles' Patent.....40%

Nail Pullers.—See Pullers, Nail.

Nail Sets.—See Sets, Nail.

Nut Crackers.—See Crackers, Nut.

Nuts—
Nuts, off list Dec. 18,1889: Square, Hex.
Hot Pressed..... 5.45¢ 6.00¢
Cold Punched..... 5.00¢ 4.90¢
In lots less than 100 ₱ ℔, add ⅛¢; 1-℔ boxes, add 1¢ to list.

Oakum—

Government.....₱ ℔ 7@7½¢
U. S. Navy.....₱ ℔ 6@6¼¢
Navy.....₱ ℔ 5½@5¾¢

Oilers—
Zinc and Tin.....65@65&10%
Brass and Copper .....50&10@50&10&5%
Malleable, Hammers' Improved, No. 1, $3.60; No. 2, $4.00; No. 3, $4.40 ₱ doz. 10@10&5%
Malleable, Hammers, Old Pattern, same list.....40%
Prior's Pat. or "Paragon" Zinc, 60@60&10%
Prior's Pat. or "Paragon" Brass.....50%
Olmstead's Tin and Zinc.....60%
Olmstead's Brass and Copper 50%
Broughton's Zinc.....50%
Broughton's Brass 50%
Gem P. D. & Co. .....₱ gro. $2
Steel, Draper and Williams.....50%

Openers, Can.
Messenger's Comet.....₱ doz $3.00, 25%
American.....₱ gross $3.00
Duplex.....doz 25¢, 15@20%
Lyman's.....₱ doz $3.75, 20%
No. 4 French.....₱ doz $2.25, 55@60%
No. 5, Iron Handle.....₱ gr $6.00, 45@50%
Eureka.....₱ doz $2.50, 10%
Sardine Scissors.....₱ doz $2 75@3.C., 50%
Star.....₱ doz $2.75
Sprague, No. 1, $2.00 2, $2.25; 3, $2.50. 50&10&10%
Excelsior, No. 1, $2.50; No. 2, $1.50...40%
World's Best, ₱ gross, No. 1, $12.00. No. 2, $24.00; No. 3, $36.00.....50&10%
Universal, ₱ doz $3.00..... .....50&5%
Domestic, ₱ doz $2.50..... .....45%
Champion ₱ doz $2.00..... .....50%

Packing, Steam—

Rubber—
Standard.....60&5@65%
Extra .....50@50&5%
N. Y. B. & P. Co., Standard..40&10@50%
N. Y. B. & P. Co., Empire.....60&5@65%
N. Y. B. & P. Co., Salamander. ₱ ℔ 65¢, 10@15%
Jenkins' Standard, ₱ ℔ 50¢,...25@25&5%
Miscellaneous—
American Packing.....10¢@11¢ ₱ ℔
Russia Packing .....14¢ ₱ ℔
Italian Packing .....13¢@14¢ ₱ ℔
Cotton Packing .....15¢@17¢ ₱ ℔
Jute.....7¢@8¢ ₱ ℔

Padlocks—See Locks.

Pails.
Galvanized Iron—

	Quarts	10	12	14
Hill's Light Weight, ₱ doz.		$2.75	3.00	3.25
Hill's Heavy Weight, ₱ dz.		3.00	3.25	3.75
Helwig's.....		2.75	3.00	3.25
Sidney Shepard & Co.....		2.35	2.85	3.05
Iron Clad		2.50	2.75	3.00
Fire Buckets.....		2.75	3.25	3.50

Buckets, see Well Buckets.
Indurated Fibre Ware—25%
Star Pails, 12 qt .....₱ doz $6.00
Fire, Stable and Milk, 14 qt ..₱ doz $7.80
Standard Fibre Ware—

	Plain.	Decr'd
Water Pails, 12 qt., per doz.	$4.00	$4.50
Dairy Pails, 14 qt., per doz.	4.50	5.00
Fire Pails, No. 1, 12 qt. per doz	4.50	
Fire Pails, No. 2, 14 qt. per doz	5.00	
Sugar Pails.....	6.00	6.50
Horse Pails.....	5.50	
Buggy Pails.....	4.00	
Slop Jars (bal. trap).....	8.00	9.00
Chamber Pails, 14-qt.....	6.50	7.50

Pans.
Dripping.
Small sizes..... .....₱ ℔ 6¼¢
Large sizes..... .....₱ ℔ 5½¢
Fry—
Standard List:

No.	0	1	2	3	4
₱ doz.	$3.00	$3.75	$4.25	$4.75	$5.25
No.	5	6	7	8	
₱ doz.	$6.00	$7.00	$8.00	$9.00	

Polished, regular goods.....70&10%
Acme Fry Pans .....60&10%

Paper and Cloth—
Sand and Emery—
List April 19, 1886..... .....50@50&10%
Sibley's Emery and Crocus Cloth.....30%

Parers.
Apple.
Advance.....₱ doz $4.75
Baldwin.....₱ doz 5.25
Bonanza.....each 5.00
Champion.....₱ doz 7.25
Daisy.....₱ doz 4.00
Dandy.....each 7.50
Eureka, 1888.....each 16.00
Family Bay State.....₱ doz 12.00
Favorite .....₱ doz 5.00
Gem.....₱ doz 5.25
Gold Medal.....₱ doz 4.00
Ideal.....₱ doz 4.00
Improved Bay State..₱ doz 27.00 @ 30.00
Little Star.....₱ doz 4.50
Monarch.....₱ doz 13.50
New Lightning.....₱ doz 5.50
Oriole.....₱ doz 4.00
Penn.....₱ doz 4.00
Perfection.....₱ doz 4.00
Pomona.....₱ doz 4.00
Rocking Table.....₱ doz 6.00
Turntable.....₱ doz 4.50
Victor.....₱doz 13.50
Waverly.....₱ doz 4.00
White Mountain.....₱ doz 4.00
72.....₱ doz. 4.25
76.....₱ doz. 5.75
78.....₱ doz. 6.50
Potato—
White Mountain .....₱ doz $4.50
Antrim Combination.....₱ doz $5.50
Hoosier.....₱ doz $13.50
Saratoga.....₱ doz $5.50

Pencils—
Faber's Carpenters'..... ..high list 50%
Faber's Round Gilt.....₱ gro $5.25
Dixon's Lead.....₱ gro $4.50
Dixon's Lumber.....₱ gro $6.75
Dixon's Carpenters' ....40&10%

Picks—
Railroad or Adze Eye, 5 to 6, $12.00; 6 to 7, $13.00.....60&10%

Picture Nails.—See Nails, Picture.

Pinking Irons.—See Irons, Pinking.

Pins.
Bow—
Humason, Beckley & Co.'s.....60&10%
Sargent & Co's....$17 and $18.....60&10%
Peck, Stow & W. Co... 50&10@50&10&10%
Curtain—
Silvered Glass.....net
White Enamel.....net
Escutcheon,
Iron, list Nov. 11, 1885..50&10@50&10&5%
Brass.....60@60&5%

Pipe, Wrought Iron—
List September 18, 1889.
1¼ and under, Plain 47½%
1¼ and under, Galvanized 40%
1½ and over, Plain.....60%
1½ and over, Galvanized 47½%
Boiler Tubes, Iron.
1¾ and under.....45%
2 to 4 inch.....50%
4-inch and larger.....52½%

Planes and Plane Irons—
Wood Planes—
Molding.....40&2%
Sench, First Quality.....55&2%
Bench, Second Quality.....60&2%
Bailey's (Stanley R. & L. Co.)....40&10%
Iron Planes—
Bailey's (Stanley R. & L. Co.)..... 40&10@40&10&10%
Miscellaneous Planes (Stanley R. & L. Co.) .....20&10@20&10&10%
Victor Planes (Stanley R. & L. Co.)..... 20&10@20&10&10%
Steer's Iron Planes.....35@35&10%
Meriden Mal. Iron Co.'s.....40@40&10%
Davis's Iron Planes .....40@40&10%
Birmingham Plane Co.....50@50&10%
Gage Tool Co.'s Self-Setting...20&10&10%
Chaplin's Iron Planes .....40@40&10%
Sargent's ..... 30&10@30&10&10%
Standard Tool Co.....50@50&5%
Plane Irons—
Butcher's.....$5.00@$5.25 to £
Buck Bros 30%
Auburn "Thistle"..... } 35&2%
Ohio..... }
Sandusky..... }
S. & I. J. White.....25%

Plates.
Felloe .....₱ ℔ 6¢@6¼¢

Pliers and Nippers—
Button's Patent.....50@50&10%
Hall's No. 2, 5 in., $13.50; No. 4, 7 in. $21.00 ₱ doz .....20&10@33⅓%
Humason & Beckley Mfg. Co..50@50&10%
Gas Pliers.....60%
Gas Pliers, Custar's Nickel Plated..60&5%
Eureka Pliers and Nippers 40%
Russell's Parallel.....25%
P. S. & W. Cast Steel 50%
P. S. & W. Tinners' Cutting Nippers, add 6% dis 10%
Carew's Pat. Wire Cutters.....20%
Morrill's Parallel, ₱ doz, $12.00....30&5%
Cronk's 8 in., $15.00; 10 in. $21.00, 40@40&5%

Plumbs and Levels—
Regular List .....70&10@70&10&10%
Disston's.....50%
Pocket Levels.....70&10@70&10&10%
Davis Iron Levels.....30%
Davis' Inclinometers .....10&10%

Poachers.
Egg.
Buffalo Steam Egg Poachers, ₱ doz, No. 1, $6.00; No. 2, $9.00..... .....25%

Pokes, Animal—
Bishop's I. X. L.....₱ doz $6.00
Bishop's O. K..... .....₱ doz $5.25
Bishop's Pioneer.....₱ doz $3.75
Bishop's American..... .....₱ doz $2.75
Eagle, Double Stale..... .....₱ doz $5.75
Eagle, Single Stale.....₱ doz $3.75
Buckeye, Single Stale.....₱ doz $2.75

Police Goods.
R. I. Tool Co., Handcuffs, $15.00₱ doz 10%
R. I. Tool Co., Leg Irons, $25.00 ₱ doz 10%
Tower's.....25%
Daley's Improved Handcuffs: 2 Hands, Polished, ₱ doz $48.00; Nickeled, $57.00: 3 Hands, Polished, ₱ doz $72.00: Nickeled, $84.00.....25%
J. P. Lovell's Police Goods..... .....25%

Polish, Metal.
Prestoline.....30%
Prestoline Paste..... .....33⅓%
Gaston's Silver Compound.....33⅓%

Polish, Stove.
Joseph Dixon's.....₱ gro $6.00, 10%
Gem.....₱ gro $4.50, 10%
Gold Medal.....₱ gro $6.00, 25%
Mirror .....₱ pro $6.00, —%
Lustro .....₱ gro $4.75
Ruby.....₱ gro $3.75
Rising Sun, 5 gro lots .....₱ gro $5.50
Dixon's Plumbago..... .....₱ ℔ 8¢
Boynton's Noon Day, ₱ gro.....13.00
Parlor Pride Stove Enamel..₱ gro 5 cans
Yates' Liquid, 2 3 5 10 gal....8¢
₱ gal ...$0.90 .80 .70 .60
Yates Standard Paste Polish, 10-℔ cans, ₱ ℔ 15¢
Jet Black .....₱ gro $3.50
Japanese.....₱ gro $3.50
Fireside.....₱ gro $2.50
Diamond O. K. Enamel.....₱ gro $19.00
Bonnell's Liquid Stove Polish..₱ gro $9.00
Bonnell's Paste Stove Polish..₱ gro $6.00
Black Eagle Benzine Paste, 5 and 10 ℔ cans .....12½¢
Black Jack Water Paste, 5 and 10 ℔ cans .....12½¢
Nickel Plate Paste .....₱ gro $6.00

Poppers, Corn—
Round or Square, 1 qt..₱ gr $10.00@10.50
Round or Square, 1½ qt..₱ gr $15@15.50
Round or Square, 2 qt..₱ gr $18.50@19.00

Post Hole and Tree Augers and Diggers—See Diggers, Post Hole, &c.

Potato Parers—See Parers, Potato.

Pots.
Glue—
Tinned.....40%
Enameled.....40&5%
Family, Howe's "Eureka".....40%
Family, L. F. C.'s "Handy" 50%

Presses.
Fruit and Jelly—
Enterprise Mfg. Co.....20&10@30%
Henis .....₱ doz $3.50
Shepard's Queen City 40%

Pruning Hooks and Shears.—See Shears.

Pullers.
Nail.
Curtiss Hammer.....₱ doz $9.00
Giant, No. 1.....₱ doz. $13.00, 10%
Giant, No. 2.....₱ doz, $15.00, 10%
Pelican.....₱ doz, $9.00, 25%

Pulleys—
Hot House, Awning, &c.....60&10%
Japanned Screw..... .....60&10%
Brass Screw.....60&10%
Japanned Side..... .....65&&10%
Japanned Clothes Line.....60&10%
Empire Sash Pulley.....55@60%
Moore's Sash, Anti-Friction.....50%
Hay Fork, Solid Eye, $4.00; Swivel, $4.50.....50&10@50&10&5%
Hay Fork, "Anti-Friction," 5 in. Solid, $5.70 .....50%
Hay Fork, "F" Common and Pat. Bushed 20%
Hay Fork, Tarbox Pat. Iron.....20%
Hay Fork, Reed's Self-Lubricating ...60%
Shade Rack 45%
Tackle Blocks.....See Blocks
Moore's Anti-Friction 5 in. Wheel, ₱ doz $12.00..... 40

Pumps—
Cistern, Best Makers .....60@60&10%
Pitcher Spout, Best Makers.....67½@70%
Pitcher Spout, Cheaper Goods.70@70&5%

Punches
Saddlers' or Drive, good, ₱ doz...60@65%
Bemis & Call Co.'s Cast Steel Drive..50&5%
Bemis&Call Co's Springfield Socket.50&5%
Spring, good quality....₱ doz $2.50@2.60
Spring, Leach's Pat.....15%
Bemis & Call Co.'s Spring and Check ..40%
Solid Tinners', P.S.&W.Co., ₱ doz $1.44, 55%
Tin'rs' Hollow Punches P.S.&W.Co.20&2%
Rice Hand Punches 15%
Avery's Revolving.....40%
Avery's Saw-Set and Punch. See Saw Sets.

Rail—

Sliding Door. Wr't Brass, ₱ ℔ 35¢.....15%
Sliding Door, Bronzed Wr't Iron..₱ ft. 7¢
Sliding Door, Iron, Painted, ₱ foot 4¢, 40%
Barn Door Light. In. ½ ⅝ ¾
Per 100 feet.....$2.00 2.50 3.10, 10%
B. D. for N. E. Hangers—
Small. Med. Large.
Per 100 feet....$2.15 2.70 3.25..net
Terry's Steel Rail, ₱ foot.....4½¢
Victor Track Rail, 7¢ ₱ foot.....50&2%
Carrier Steel Rail, ₱ foot .....4½¢
Moore's Wrought Iron.....25%

Rakes—
Cast Steel, Association goods 70%
Cast Steel, outside goods 60&10&10@70&5%
Malleable.....70@70&5%
Gibbs Lawn Rake.....$12.00, 50&15
Canton Lawn Rake..... .$9.00, 50&10
Ft. Madison Prize Bow Brace and Peerless 65%
Fort Madison Steel Tooth Lawn Rake, $6.00..... .....25%

Razors—
J. R. Torrey Razor Co 20%
Wostenholme and Butcher, $10.00 to £, 10%
Jordan's AAA1, list Nov. 1, 1889.....50%
Jordan's Old Faithful, list Nov. 1,'89.50%
Electric.....List net

Razor Strops—See Strops, Razor.

Rings and Ringers.
Bull Rings—
Union Nut Co.....55%
Sargent's.....66⅔&10@70&5%
Hotchkiss' low list.....30%
Humason, Beckley & Co.'s.....70&10%
Peck, Stow & W. Co's..50&10@50&10&10%
Ellrich Hdw. Co., White Metal, low list. 50@50&10%
Hog—
Top of the Hill Ringers.....₱ doz $2.00
Top of the Hill Rings.....₱ doz $1.25
Hill's Improved Ringers . . .₱ doz $4.25
Hill's Old Style Ringers.....₱ doz $2.75
Hill's Tongs.....₱ doz $4.50
Hill's Rings.....₱ doz bxs $2.15@2.25
Perfect Rings.....₱ doz bxs $1.60@1.70
Perfect Ringers.....₱ doz $2.15@2.25
Blair's Hog Ringers.....₱ doz $2.25@2.50
Blair's Hog Rings.....₱ doz 90¢@$1.00
Champion Ringers..... .....₱ doz $2.00
Champion Rings, Double.....₱ doz $2.25
Brown's Ringers.....₱ doz $2.00
Brown's Rings.....₱ doz $1.25@1.30

Rivets and Burrs—
Iron, list Nov. 17, '87.....40%
Copper.....50&10%
Coppered Iron, Bettina Brand.....40%

Rivet Sets—See Sets.

Rods—
Stair, Brass .....25&2%
Stair, Black Walnut .. ..₱ doz 40¢

Rollers—
Barn Door, Sargent's list .....60&10&10%
Acme Moore's Anti-Friction.....55%
Union Barn Door Roller 70%

Rope—
Manufacturers' prices:
Manila...⅛ in. and larger ₱ ℔ 15 ¢
Manila.....⅜ in. ₱ ℔ 15½¢
Manila.....¼ and 5-16 in. ₱ ℔ 15¾¢
Manilla Tarred Rope.....₱ ℔ 14½¢
Manila, Hay Rope.....₱ ℔ 15 ¢
Sisal...⅛ inch and larger ₱ ℔ 10½¢
Sisal.....⅜ in. ₱ ℔ 11 ¢
Sisal.....¼ and 5-16 in. ₱ ℔ 11½¢
Sisal, Hay Rope.....₱ ℔ 10½¢
Sisal, Tarred Rope.....₱ ℔ 10 ¢
Sisal, Medium Lathe Yarn.₱ ℔ 9½¢
1½% for cash in 10 days.
New Zealand..½ in. and larger ₱ ℔ 9½¢
New Zealand.....⅜ inch, ₱ ℔ 9½¢
New Zealand..¼ and 5-16 inch, ₱ ℔ 10 ¢
New Zealand, Hay Rope.....₱ ℔ 9½¢
New Zealand, Tarred Rope....₱ ℔ 8½¢
Cotton Rope.....₱ ℔ 15@18¢ net
Jute Rope.....₱ ℔ 7½¢
Wire—
List May 1, 1886.
Iron.....32½&2½%
Iron, Galvanized.....40&2½%
Cast Steel.....40&2½%

Rules—
Boxwood.....80&10&10@80&10&10&5%
Ivory.....50@50&10%
Starrett's Rules and Straight Edges, Steel..... .....25&10%

Sad Irons—See Irons, Sad.

Sand and Emery Paper and Cloth—See Paper and Cloth, Sand and Emery.

Sash Cord—See Cord, Sash.

Sash Locks—See Locks, Sash.

Sash Weights—See Weights, Sash.

Sausage Stuffers or Fillers—See Stuffers or Fillers, Sausage.

Saws—
Disston's Circular 45%
Disston's Cross Cuts.....45%
Disston's Hand.....20%
Woodrough & McFarlin.
Hand, Panel and Rip.....25%
Narrow Champion Cross Cuts with Handles, ₱ foot.....20¢
Champion Thin Back Cross Cuts, ₱ foot.....28¢
Champion Extra Thin Back Cross Cuts, ₱ foot.....31¢
One Man Champion Cross Cuts, ₱ foot.....40¢
Wheeler, Madden & Clemson Mfg. Co.
Hand, Panel and Rip.....30%
Narrow Champion Cross Cuts with Handles, ₱ foot.....20¢
Champion Thin Back Cross Cuts, ₱ foot.....28¢
Champion Extra Thin Back Cross Cuts, ₱ foot.....31¢
One Man Champion Cross Cuts, ₱ ft.40¢

Atkins' Circular Shingle and Heading saws dis 50%
Atkins' Silver Steel Diamond X Cuts ₱ foot 70¢
Atkins' Special Steel Dexter X Cuts ₱ foot 50¢
Atkins' Special Steel Diamond X Cuts ₱ foot 32¢
Atkins' Champion and Electric Tooth X Cuts ₱ foot 30¢
Atkins' Hollow Back X Cuts. ₱ foot 20¢
Atkins' Mulay, Mill and Drag 40%
Atkins' One-Man Saw, with handles, ₱ foot 40¢
Peace Circular and Mill 45%
Peace Hand Panel and Rip 25%
Peace Cross Cuts 45%
Richardson's Circular and Mill 45%
Richardson's X Cuts 45%
Richardson's Hand, &c. 25%

Hack Saws—

Griffin's, complete. 40&10@50%
Griffin's Hack Saw, Blades 40&10@50%
Star Hack Saws and Blades 25%
Eureka and Crescent 25%

Scroll—

Lester, complete, $10.00 25%
Rogers, complete, $4.00 25%
Barnes' Builders' and Cabinet Makers', $15 25%
Barnes' Scroll Saw Blades 35%

Saw Frames—See Frames, Saw.

Saw Sets—See Sets, Saw.

Saw Tools—See Tools, Saw.

Scales—

Hatch, Counter, No. 171, good quality, ₱ doz $21.00
Hatch, Tea, No. 161 ₱ doz $6.75@$7.00
Union Platform, Plain $2.10@2.90
Union Platform, Striped $2.20@2.80
Chatillon's Grocers' Trip Scales 50%
Chatillon's Eureka 25%
Chatillon's Favorite 40%
Family, Turnbulls 30@30&10%
Riehle Bros.' Platform 40%

Scale Beams—See Beams, Scale

Scissors, Fluting 45%

Scrapers—

Adjustable Box Scraper (S. R. & L. Co.) $6.50 30&10%
Box, 1 Handle ₱ doz $4.00. 10%
Box, 2 Handle ₱ doz $6.00, 10%
Defiance Box and Ship 20&10%
Foot 50&10@60%
Ship, Common ₱ doz $3.50 net
Ship, R. I. Tool Co 10%

Screen Window and Door Frames—See Frames.

Screw Drivers—See Drivers, Screw.

Screws.

Bench and Hand—

Bench, Iron 55&10@55&10&10%
Bench, Wood, Beech ₱ doz $2.25
Bench, Wood, Hickory 30&10%
Hand, Wood 25&10@25&10&5%
Lag, Blunt Point, list Jan. 1, 1890 75&10%
Coach and Lag, Gimlet Point, list Jan. 1, 1890 75%
Bed 25&5%
Hand Rail, Sargent's 60%&10%
Hand Rail, H. & B. Mfg. Co 70&10@75%
Hand Rail, Am. Screw Co 75%
Jack Screws, Millers Falls list 50@50&5%
Jack Screws, P. S. & W 35%
Jack Screws, Sargent 60&10@60&10&5%
Jack Screws Stearns' 40@40&10%

Cork—

Humason & Beckley Mfg. Co 40&10@50%
Williamson's 33⅓@33⅓&5%
Hows Bros & Hulbert 35%

Machine—

Flat Head, Iron 55%
Round Head, Iron 50%

Wood—

List March 1, 1889.
Flat Head Iron 50%
Round Head Iron 40%
Flat Head Brass 45%
Round Head Brass 35%
Flat Head Bronze 45%
Round Head Bronze 35%
Extra 5 @ 10 % often given.
Rogers' Drive Screws 66⅔%

Scroll Saws—See Saws, Scroll.

Scythe Snaths—See Snaths, Scythe.

Sets.

Awl and Tool.

Aiken's Sets, Awls and Tools, No. 20, ₱ doz $10.00 55&10%
Fray's Adj. Tool Hdls., Nos. 1, $12; 2, $18; 3, $12; 4, $9. 25@25&10%
Miller's Falls Adj. Tool Hdls., Nos. 1, $12, 2, $18 25%
Henry's Combination Haft ₱ doz $6.50
Brad Sets, No. 42, $10.50; No. 43, $12.50 70&10&5%
Stanley's Excelsior: No. 1, $7.50; No. 2, $4.00; No. 3, $5.50 30&10%

Nail—

Square ₱ gr., $4.00@$4.25
Round ₱ gr. $3.25
Buck Bros 27½%
Cannon's Diamond Point ₱ gr., $12, 20%

Rivet.

Regular list 50&10%

Saw—

Stillman's Genuine ₱ doz $5.00@7.75,
Stillman's Imita ₱ doz $3.25@5.25, 40&5@40&10%
Common Lever ₱ doz $2.00, 40&5%
Morrill's No. 1, $15.00; Nos. 3&4, $24.00, 40&10@50%
Leach's No. 0, $8.00; No. 1, $15, 15@20%
Nash's 20&10@20&10&10%
Hammer, Hotchkiss $5.50, 10%
Hammer, Bemis & Call Co.'s new Pat. 30&5%
Bemis & Call Co.'s Lever and Spring Hammer 30&5%
Bemis & Call Co.'s Plate 10%
Bemis & Call Co.'s Cross Cut 12½%
Aiken's Genuine $13.00, 50&10%
Aiken's Imitation $7.00, 55&5%
Hart's Pat. Lever 20%
Disston's Star 25%
Leopold 40&10&50%
Atkin's Lever ₱ doz No. 1, $6.00
Atkin's Criterion ₱ doz No. 1, $6.00
Croissant (Keller), No. 1, $15.00; No. 2, $24.00 40&10%
Avery's Saw Set and Punch 50%
Chieftain H. R. Co.'s Superior ₱ doz $15, 50%

Sharpeners, Knife.

Parkin s.
Applewood Handles ₱ doz $6.00, 40%
Rosewood or Cocobolo ₱ doz $9.00, 40%

Shaves, Spoke.

Iron 45%
Wood 30%
Bailey's (Stanley R. & L. Co.) 40&10%
Stearns' 30&10%
Cincinnati 25&10%

Shears—

American (Cast) Iron 75&10@75&10&5%
Barnard's Lamp Trimmers ₱ doz $3.75
Tinners' 20&2%
Seymour's, List, Dec., 1881. 60&10&10@60&10&10&5%
Heinisch's, List, Dec., 1881. 60&10&10@60&10&10&5%
Heinisch's Tailor's Shears 33⅓%
First quality C. S. Trimmers 80@80&10%
Second quality C. S. Trimmers. 80&10@80&10&10%
Acme Cast Shears 10&10%
Diamond Cast Shears 10%
Clipper 10&10%
Victor Cast Shears 75&10@75&10&5%
Howe Bros. & Hulbert, Solid Forged Steel 40%
Chicago Drop Forge & F. Co., Solid Steel Forged 60%
Clauss Shear Co., Japanned 70%
Clauss Shear Co., Nickeled, same list 60%
Electric List net

Pruning Shears and Hooks.

Disston's Combined Pruning Hook and Saw ₱ doz $18.00, 20&10%
Disston's Pruning Hook, ₱ doz $12.00, 20&10%
E. S. Lee & Co.'s Pruning Tools 40%
Pruning Shears, Henry's Pat, ₱ doz $3.75@4.00 net
Henry's Pruning Shears, ₱ doz $4.25@4.50 net
Wheeler, M. & C. Co.'s Combination, ₱ doz $12.00, 20%
Dunlap's Saw and Chisel, ₱ doz $8.50, 30%
J. Mallinson & Co., No. 1, $5.25; No. 2 7.25
P., S. & W. Co 60%

Tinners', &c.—

Shears and Snips (P. S. & W.) 20@25%
Snips, J. Mallinson & Co 33⅓%

Sheaves—

Sliding Door—

M. W. Co., list July, 1888 50&10@60&5%
R. & E., list Dec. 18, 1885 55&20%
Corbin's list 60&10&2%
Patent Roller 60&10&2%
Patent Roller, Hatfield's 75%
Russell's Anti-Friction, list Dec. 18, 1885 60&2%
Moore's Anti-Friction 50%

Sliding Shutter—

R. & E. list Dec. 18, 1885 60&10&2%
Sargent's list 60&10%
Reading list 60&10&10%

Ship Tools—

L. & I. J. White 20&5%

Shoes, Horse, Mule, &c.—

Horse—

Burden's, Perkins', Phœnix, at factory. $1.00

Mule—

Add $1 ₱ keg to above prices.

Ox, Wrought—

Ton lots ₱ ℔ 9¢
1000 ℔ lots ₱ ℔ 9½¢
500 ℔ lots ₱ ℔ 10¢

Shot—

(Eastern prices 2¢ off, cash, 5 days.

Drop, ₱ bag, 25 ℔ $1.40
Drop, ₱ bag, 5 ℔ .33
Buck and Chilled, ₱ 25-℔ bag 1.65
Buck and Chilled, ₱ 5-℔ bag .38

Shovels and Spades—

Ames' Shovels, Spades, &c., list Nov. 1, 1885 20%
NOTE.—Jobbers frequently give 5@7½% extra on above.
Griffith's Black Iron 50&10%
Griffith's C. S. 60@60&10%
Griffith's Solid C. S. R. R. Goods 20%
Old Colony (Sanford Fork & Tool Co) 35%
St. Louis Shovel Co. 20@20&7½%
Hussey, Binns & Co. 15@55%
Hubbard & Co. 20@20&7½%
Lehigh Mfg. Co. 50&10%
Payne Pettebone & Son, list January, 1886 30%
Remington's (Lowman's Pat.) 20&10@40%
Rowland's, Black Iron 50&10%
Rowland's Steel 60&5@60&10%

Shovels and Tongs—

Iron Head 60&10@60&10&5%
Brass Head 60&10&10%

Sieves—

Mann's Tin Rim 50&25%
Buffalo Metallic, S. S. & Co. 50&25%
Shaker (Barier's Pat.) Flour Sifters. ₱ doz $2.00; ₱ gr $21.60
Electric ₱ gr $21.00
A. & W. Sifters ₱ doz 2.00
Hunter's ₱ doz $2.00
Smith's Adjustable Sifters ₱ doz $2.00
Smith's Adjustable Milk Strainer. ₱ doz $2.00
Smith's Adjustable T. & C. Strainer. ₱ doz. $1.25

Sieves, Wooden Rim—

	Iron.	Plated.
Mesh 18, Nested, ₱ doz..	80¢	$1.00
Mesh 20, Nested, ₱ doz..	95¢	1.10
Mesh 24, Nested, ₱ doz..	$1.15	1.25

Skeins, Thimble—

Western list 75&5@75&10%
Columbus Wrt. Steel. Special net prices
Coldbrookdale Iron Co. 60%
Utica P. S. T. Skeins 60%
Utica Turned and Fitted 35%

Slates—

School, by case 50@50&10%

Snaps, Harness, &c.—

Anchor (T. & S. Mfg. Co.) 65%
Fitch's (Bristol) 50&10%
Hotchkiss 10%
Andrews 50%
Sargent's Patent Guarded 70&10&10%
German, new list 40&10%
Covert 50&2%
Covert, New Patent 50&5&2%
Covert, New R. E. 60&2%
Covered Spring 60&10&10%

Snaths, Scythe.

List 50&10@50&10&5%

Soldering Irons—See Irons, Soldering.

Spittoons, Cuspidors, &c.

Standard Fiberware—

Cuspidors, 8¼-inch, ₱ doz., No. 5, $8; No. 6X $9.
Spittoons, Daisy, 8-inch, No. 1, $4; 10 and 11 inch, $6.

Spoke Shaves—See Shaves, Spoke.

Spoke Trimmers—See Trimmers, Spoke.

Spoons and Forks—

Tinned Iron—

Basting, Cen. Stamp. Co.'s list 70&10%
Solid Table and Tea, Cen. Stamp. Co.'s list 70&10%
Buffalo S. S. & Co. 33⅓&2%

Silver-Plated—(4 mos. or 5% cash 30 days).

Meriden Brit. Co., Rogers 40, 15, 10&5%
C. Rogers & Bros 40, 15, 10&5%
Rogers & Bro 40, 15, 10&5%
Reed & Barton 40&10%
Wm. Rogers Mfg. Co 40, 15, 10, 5&5%
Simpson, Hall, Miller & Co. 40, 15, 10&5%
Holmes & Edwards Silver Co. 40, 15, 10, 5&5%
L. Boardman & Son 60%

Miscellaneous.

Holmes & Edwards Silver Co.:
No. 67 Mexican Silver 50&10&5%
No. 30 Silver Metal 50&10&5%
No. 24 German Silver 50&10&5%
No. 50 Nickel Silver 50&5%
No. 49 Nickel Silver 50&10&5%
Wm. Rogers Mfg. Co.
Rogers' Silver Metal 50, 10&6%
18% Rogers' German Silver 60&6%
22% Rogers' Nickel Silver. 50&6%
German Silver 50@50&5
German Silver, Hall & Elton 50&5% cash
Nickel Silver 50&5@50&10&5% cash
Britannia 60%
Boardman's Nickel Silver 50&5% cash
Boardman's Britannia Spoons, case lots 60&5% cash

Springs, Door.

Torrey's Rod, regular size ₱ doz $1.80
Gray's, ₱ gr., $20.00 20%
Bee Rod ₱ gr., $20.00 20%
Warner's No. 1, ₱ doz, $2.50; No. 2, $3.30 40&10@50%
Gem (Coil), list April 19, 1886 10%
Star (Coil), list April 19, 1886 20%
Victor (Coil) 60@60&10%
Champion (Coil) 60&10@60&10&10%
Philadelphia, 5 in., $5.00; 8 in., $7.75.
Cowell's No. 1, ₱ doz, $18.00; No. 2, $15.00 50%
Rubber, complete, ₱ doz, $4.50 55&10%
Hercules 50%
Shaw Door Check and Spring 25@30@35%
Elliptic, Concord, Platform and Half Scroll 60@60&5%
Cliff's Bolster Springs 25%

Squares—

Steel and Iron } 80 &10%
Nickel-Plated }
Try Square and T Bevels 60&10@60&10&10%
Disston's Try Square and T Bevels. 50%
Winterbottom's Try and Miter 30&10%
Starrett's Micrometer Caliper Squares. 25%
Avery's Flush Bevel Squares 40%
Avery's Bevel Protractor 50%

Squeezers.

Fodder.—

Blair's ₱ doz $2.00
Blair's "Climax" ₱ doz $1.25

Lemon—

Porcelain Lined, No. 1 ₱ doz $6.00, 25&30%
Wood, No. 2 ₱ doz $3.00, 35%
Wood, Common ₱ doz $1.70@1.75
Dunlap's Improved ₱ doz $3.75, 20%
Sammis No. 1, $5.00; No. 2, $9; 12, $18 ₱ doz 25&10%
Jennings' Star ₱ doz $2.50
The Boss ₱ doz $2.50
Dean's Nos. 1, ₱ doz $6.50; 2, $8.35; 3, $1.90; Queen, $2.50
Little Giant 50@50&5%
King 40&5%
Hotchkiss Straight Flash ₱ doz $12.00

Standard Fiber Ware—See Ware, Standard Fiber.

Staples.

Blind—

Barbed, ½ in. and larger ₱ ℔ 7@7½¢
Barbed, ¾ in ₱ ℔ 8@8½¢
Fence Staples, Galvanized, } Same price as B'b'd Wire. See Trd. Rep.
Fence Staples, Plain, }

Steelyards 40&10@50%

Stocks and Dies—

Blacksmith's
Waterford Goods 40@40&10%
Butterfield's Goods 40@40&10%
Lightning Screw Plate 25@30%
Reece's New Screw Plates 33⅓&5@40%
Reversible Ratchet 30%
Gardner 30 %
25%

Stops, Bench.

Morrill's ₱ doz $9, 50%
Hotchkiss's ₱ doz $5, 10@10&10%
Weston's, No. 1, $10; No. 2, $9.25&10&5%
McGill's ₱ doz $3 10%
Cincinnati 25&10%

Stone—

Hindostan No. 1, 3¢; Axe, 3½¢; Slips No. 1, 4½¢
Sand Stone ₱ ℔ 2½¢
Washita Stone, Extra ₱ ℔ 20@21¢
Washita Stone, No. 1 ₱ ℔ 15@16¢
Washita Stone, No. 2 ₱ ℔ 11@12¢
Washita Slips, No. 1, Extra ₱ ℔ 37@40¢
Washita Slips, No. 1 ₱ ℔ 25@26¢
Arkansas Stone, No. 1, 4 to 6 in ₱ ℔ $1.50
Arkansas Stone, No. 1, 6 to 9 in ₱ ℔ $1.85
Turkey Oil Stone, 4 to 8 in ₱ ℔ 40¢
Turkey Slips ₱ ℔ $1.00@1.50
Lake Superior, Chase ₱ ℔ 16¢
Lake Superior Slips, Chase ₱ ℔ 31@32¢
Seneca Stone, Red Paper Brand ₱ ℔ 18@20¢
Seneca Stone, High Rounds ₱ ℔ 20@25¢
Seneca Stone, Small Whets ₱ gro $24.00

Stove Polish—See Polish, Stove.

Stretchers, Carpet.

Cast Steel, Polished ₱ doz $2.25
Cast Iron, Steel Points ₱ doz 80¢
Socket ₱ doz $1.75
Bullard's 25@25&10%

Strops, Razor—

Genuine Emerson 60@60&5%
Imitation " ₱ doz $2.00, 20&10&5%
Torrey's 20%
Badger's Belt and Com ₱ doz $2.00
Lamont Combination ₱ doz $4.00
Jordan's Pat. Padded, list Nov. 1, '89 50%
Electric List net

Stuffers or Fillers, Sausage—

Miles' "Challenge," ₱ doz $20, 50@50&5%
Perry ₱ doz, No. 1, $15.00; No. 0, $21.00 50&5@50&10%
Draw Cut No. 4, each $30.00 20%
Enterprise Mfg. Co. 20&10@30%
Silver's 40&10%

Sweepers, Carpet.

Bissell No. 5 ₱ doz $17.00
Bissell No. 7 New Drop Pan ₱ doz $19.00
Bissell, Grand ₱ doz $36.00
Grand Rapids ₱ doz $24.00
Crown Jewel, No. 1, $18.00; No 2, $19.00; No. 3, , 20.00
Magic ₱ doz $15.00
Jewel ₱ doz $17.00
Improved Parlor Queen, Nickeled ₱ doz $27.00
Japanned ₱ doz $24.00
Excelsior ₱ doz $22.00
Garland ₱ doz $18.00
Parlor Queen ₱ doz $24.00
Housewife's Delight ₱ doz $15.00
Queen ₱ doz $16.00
Queen, with band ₱ doz $18.00
King ₱ doz $30.00
Weed, Improved ₱ doz $18.00
Hub ₱ doz $16.00
Cog-Wheel ₱ doz $16.00
Conqueror ₱ doz $22.00
Easy ₱ doz $22.00
Monarch ₱ doz $22.00
Goshen ₱ doz $21.00

Tacks, Brads, &c.—

List Oct. 19, 1889. Standard Weights.

Carpet Tacks—
American Iron, Blued 77½%
American Iron, Tin'd or Cop'd 77½%
Steel, Plain or Bright 75%
Steel, Tinned or Coppered 75%
Swedes Iron, Blued 75%
Swedes Iron, Tinned or Cop'd 75%
American Iron Cut Tacks 75%
Swedes Ir. Uphol'rs' Tacks, Blued 75%
Swedes Iron Upholsterers' Tacks, Tinned 77½%
Gimp and Lace Tacks, Blued 75%
Gimp and Lace Tacks, Tinned 77½%
Swedes Iron Basket or Trimmers' Tacks 70&10%
Miners' Tacks 77½%
Bill-Posters' or Railroad Tacks 75%
Bill-Posters' or Railroad Tacks, Tinned 77½%
Copper Tacks 40%
Copper Finish. & Trunk Nails 40%
Cigar Box Nails 50%
Zinc Glaziers' Points 50%
Picture-Frame Points 50%
Looking-Glass Tacks 50%
Brush Tacks 60%
Tin-Capped Trunk Nails 60%
Finishing Nails 70%
Trunk and Clout Nails, Black and Tinned 72½%
Common and Patent Brads 70%
Hungarian Nails 70%
Basket and Chair Nails 65%
Leathered Carpet Tacks 40%

Miscellaneous—

Double-Pointed 82½%
Wire Carpet Nails 60&10%
Plymouth Rock Steel Carpet Tacks 25%

Extra 10 @ 10&10 %

Wire Brads & Nails, see Nails, Wire.
Steel-Wire Brads, R. & E. Mfg. Co.'s list.....50&10%

Tapes, Measuring—

American.....33⅓@33⅓&5%
Spring.....40%
Chesterman's, Regular list.....25@30%

Thermometers—

Tin Case.....80@80&10%

Thimble Skeins—See Skeins.

Ties, Bale- Steel

Standard Wire, list.....50&10&5%

Tinners' Shears, &c.—See Shears, Tinners', &c.

Tinware—

Stamped, Japanned and Pieced, list Jan. 20 1887.....70&10@70&10&5%

Tire Benders, Upsetters, &c—

See Benders and Upsetters, Tire.

Tools.

Coopers'—

Bradley's.....20%
Barton's.....20@20&5%
L. & I. J. White.....20&5%
Albertson Mf'g. Co.....25%
Beatty's.....30%
Sandusky Tool Co.....30@30&5%
Ehaves, Cincinnati Tool Co.....20%

Lumber.

Ring Peavies, "Blue Line"...₩ doz $20.00
Ring Peavies, Common.....₩ doz $18.00
Steel Socket Peavies.....₩ doz $21.00
Mall. Iron Socket Peavies.....₩ doz $19.00
Cant Hooks, "Blue Line"...₩ doz $16.00
Cant Hooks, Common Finish..₩doz$14.00
Cant Hooks, Mall. Socket Clasp, "Blue Line" Finish.....$16.00
Cant Hooks, Mall. Socket Clasp, Common Finish.....₩ doz $14.50
Cant Hooks, Clip Clasp, "Blue Line" Finish.....₩ doz $14.00
Cant Hooks, Clip Clasp, Common Finish.....₩ doz $12.00
Hand Spikes....₩ doz 6 ft., $15.00; 8 ft., $20.00

Pike Poles, Pike & Hook, ₩ doz., 12 ft., $11.50; 14 ft., $12.50; 16 ft., $14.50; 18 ft., $17.50; 20 ft., $21.50.
Pike Poles, Pike only, ₩ doz, 12 ft., $10.00; 14 ft., $11.00; 16 ft., $13.00; 18 ft., $16.00; 20 ft., $20.00.
Pike Poles, not Ironed, ₩ doz, 12 ft., $6.00; 14 ft., $7.00; 16 ft., $9.00; 18 ft., $12.00; 20 ft., $16.00.
Setting Poles, ₩ doz, 12 ft., $14.00; 14 ft., $15.00; 16 ft., $17.00
Swamp Hooks.....₩ doz $18.00

Saw.

Atkins' Perfection.....₩ doz $12.00
Atkins' Excelsior.....₩ doz $6.00
Atkins' Giant.....₩ doz $4.00

Tobacco Cutters—See Cutters, Tobacco.

Transom Lifters — See Lifters, Transom.

Traps—

Game—

Newhouse.....40@40&5%
Oneida Pattern.....70&10%
Game, Blake's Patent.....40&10&5%

Mouse and Rat—

Mouse Wood, Choker, ₩ doz holes, 11@12₩
Mouse, Round Wire.....₩ doz $1.50, 10%
Mouse, Cage, Wire.....₩ doz $2.50, 10%
Mouse, Catch-'em-alive....₩ dz $2.50 15%
Mouse, Bonanza.....₩ gr
Mouse, Delusion.....₩ gr
Rat, Decoy.....₩ gr $10.00, 10%
Ideal.....₩ gr $10.00
Cyclone.....₩ gr $5.25
Hotchkiss Metallic Mouse, 5-hole traps, ₩ doz., 90¢; in full cases, ₩ doz.....75¢
Hotchkiss Imp. Rat Killer..₩ gro $18.50
Hotchkiss New Rat Killer..₩ gro $16.50
Schuyler's Rat Killer.....₩ gro $15.00

Triers—

Butter and cheese.....25%

Trimmers, Spoke.

Bonney's.....₩ doz $10.00, 50%
Stearns'.....20&10%
Ives', No. 1, $15.00; No. 2, $12.00 ₩ doz. 55&10%
Douglas'.....₩ doz $9.00, 20%
Cincinnati.....25%

Trowels—

Lothrop's Brick and Plastering, 20&10&5@35%
Reed's Brick and Plastering.....15%
Disston's Br'k and Plastering.....25%
Peace's Plastering.....25%
Clement & Maynard's.....20%
Rose's Brick.....15@20%
Brade's Brick.....25%
Worrall's Brick and Plastering.....20%
Garden.....70%

Trucks, Warehouse, &c.—

B. & L. Block Co.'s list, '82.....40%

Tubes, Boiler—

See Pipe.

Twine—

Flax Twine—	BC.	B.
No. 9, ¼ and ⅛ ℔ Balls	26¢	34¢
No. 12, ¼ and ⅛ ℔ Balls	25¢	33¢
No. 18, ¼ and ⅛ ℔ Balls	22¢	32¢
No. 24, ¼ and ⅛ ℔ Balls	22¢	32¢
No. 36, ¼ and ⅛ ℔ Balls	20¢	31¢

No. 284, Mastrass, ¼ and ⅛ ℔ Balls..52@54¢
Chalk Line, Cotton, ⅛ ℔ Balls.....25¢
Mason Line, Linen, ⅛ ℔ Balls.....55¢
2-Ply Hemp, ¼ and ⅛ ℔ Balls (Spring Twine).....15½¢
3-Ply Hemp, 1 ℔ Balls.....16¢@16½¢
3-Ply Hemp, 1½ ℔ Balls.....15¢@15½¢
Cotton Wrapping, 5 Balls to ℔ ..15¢@16¢
2, 3, 4 and 5-Ply Jute, ⅛ ℔ Balls.....10¢
Wool.....6½¢@6¾¢
Paper.....13¢@14¢
Cotton Mops, 6, 9, 12 and 15 ℔ to doz..18¢

Vises—

Solid Box.....50&10@50&10&5%

Parallel—

Fisher & Norris Double Screw.....15&10%
Stephens'.....25@30%
Parker's.....20@25%
Wilson's.....55%
Howard's.....40%
Bonney's.....40&10%
Millers Falls.....40@40&10%
Trenton.....40&5@40&10%
Merrill's.....15@20%
Sargent's.....60&10&10%
Backus and Union.....40%
Double Screw Leg.....15&10%
Frentiss.....20@25%
Simpson's Adjustable.....40%
Moore's.....20%

Saw Filers—

Bonney's, Nos. 2 & 3, $15.00.....40&10%
Stearn's.....33⅓&10@33⅓&10&10%
Stearn's Silent Saw Vises.....33⅓@35%
Sargent's.....66⅔&10%
Hopkins'.....₩ doz $17.50, 10%
Reading.....40&10%
Wentworth.....20&10%
Combination Hand Vises.....₩ gr $42.00
Cowell Hand Vises.....20%
Bauer's Pipe Vises.....10%
Cincinnati.....25&10%

Wagon Boxes—See Boxes, Wagon.

Washer Cutters—See Cutters Washer.

Wagon Jacks—See Jacks, Wagon.

Ware, Hollow, Enameled, &c.

Cast Iron, Hollow—

Stove Hollow-Ware—
Ground.....55&5@60&5%
Unground.....65&10@65&10&5%
White Enameled-Ware—
Maslin Kettles.....60&10&5%
Boilers and Saucepans.....40%
Tinned Boilers and Saucepans.....40%
Rustless Hollow-Ware.....50@50&5%
Gray Enameled-Ware—
Stove.....50%
Maslin Kettles.....60&10&10%
Boilers and Saucepans.....40&5%

Enameled—

Agate and Granite Ware, list Jan. 1, 1889.....33⅓&10%
Ironclad Enameled Ware...dis 33⅓&10%

Kettles—

Galvanized Tea-Kettles—

Inch....	6	7	8	9
Each....	55¢	60¢	65¢	75¢

Standard Fiber—

	Per Dozen. Plain.	Dec'r'd
Wash-Basins, 10½ in.	$2.00	$2.25
Wash-Basins, 12 in.	2.25	2.75
Keelers, 11½ in.		4.00
Cuspidors		8.00
Spittoons, "Daisy," 8 in....	4.00	4.50
Peck Measure	4.00	
Half-peck Measure	3.50	

See also Pails.

Indurated Fiber—25%

Spittoons, No. 2, ₩ doz.....$9.00
Basins, Ringed, ₩ doz., No. 2, $4.80; No. 3.....$4.20
Washtubs, Nested, Nos. 0, 1, 2 and 3 (4 pieces), ₩ nest.....$7.50
Keelers, Nested, Nos. 1, 2, 3 and 4 (4 pieces), ₩ nest.....$3.70
Butter Bowls 15, 17 and 19-inch (3 pieces), ₩ nest.....$2.25
Liquid Measures, pt., qt., 2 qt. and funnell (4 pieces) ₩ set.....$3.00
Dry Measures, 1, 2, 4, 8 and 16 qts. (5 pieces), ₩ set.....$3 00

See also *Pails.*

Silver Plated, Hollow—

4 mo. or 5 % cash in 30 days.

Reed & Barton, Meriden Britannia Co., Simpson, Hall, Miller & Co., Rogers & Brother.....40&5%
Hartford Silver Plate Co.....40&5&5%
William Rogers Mfg. Co.....40&5&5%

Washers—

Size	¼	5-16	⅜	½	⅝	¾	1
Washers....	6¾	5½	4½	3½	3	3	3

In lots less than 200 ℔, ₩ ℔, add ¼¢, 5-℔ boxes 1¢ to list.

Wedges—

Iron.....₩ ℔ 3½¢
Steel.....₩ ℔ 4 ¢

Weights, Sash—

Solid Eyes.....₩ ton $18@$19

Well Buckets, Galvanized—See Buckets, Well, Galvanized.

Wheels, Well.

8 in., $2.25; 10 in., $2.70; 12 in., $3.25

Wire and Wire Goods—

Iron—

Market.
Br. & Ann., Nos. 0 to 18.....72½%
Cop'd, Nos. 0 to 18.....70%
Galv., Nos. 0 to 18.....62½%
Tin'd, Tinned list Nos. 0 to 18....62½%
Stone,
Br. and Ann'd, Nos. 16 to 18....72½%
Bright and Ann'd, Nos. 19 to 26.... 75%
Br. and Ann'd, Nos. 27 to 36.....77½%
Tinned.....
Tinned Broom Wire, 18 to 21, ₩ ℔...5¼¢
Galvanized Fence, Nos. 8 and 9.....65%
Annealed Fence, Nos. 8 and 9.....75%
Annealed Grape, Nos. 10 to 14.....75%
Brass, list Jan. 18, 1884.....25%
Copper, list Jan. 18, 1884.....25%
Barb Fence.....See Trade Report
Annealed Wire on Spools.....50%
Malin's Steel and Tin'd on Spools.....50%
Malin's Brass and Cop. on Spools.....40%
Cast Steel Wire.....50%
Stubs' Steel Wire.....$6.00 to 2.30
Steel Music Wire, Nos. 12 to 30..55¢ ₩ ℔
Picture Wire.....New list 50%
Wire Clothes Lines, see Lines.

Bright Wire Goods—

Standard list.....85%

Wire Cloth and Netting.

Painted Screen Cloth, good quality, ₩ 100 sq. ft., $1.60 @ $1.75
Galvanized Wire Netting.....70&10@75%

Wire Rope—See Rope, Wire.

Wrenches—

American Adjustable.....40%
Baxter's Adjustable "S".....40&10@50%
Baxter's Diagonal.....40&10@50%
Coes' Genuine.....50&2%
Coes' "Mechanics".....50&10&2%
Girard Standard.....65&10%
Lamson & Sessions' Engineers'..60&10%
Lamson & Sessions' Standard...70&10%
P. S. & W. Agricultural.... } 75 @ 75&10
Girard Agricultural..... }
Lamson & Sessions' Agric'l.. }
Bemis & Call's
Pat. Combination.....35%
Merrick's Pattern.....35%
Brigg's Pattern.....25%
Cylinder or Gas Pipe.....40&5%
No. 3 Pipe.....40&10%
Aiken's Pocket (Bright).....$6.00, 50&10%
The Favorite Pocket.....₩ doz $4.00, 40%
Webster's Pat. Combination.....25%
Boardman's.....20&10%
Always Ready.....25&5%
Alligator.....50%
Donohue's Engineer.....20&10%
Acme, Bright.....50&2%
Acme, Nickeled.....40&2%
Walker's.....65&2%
Diamond Steel.....55&3%
Cincinnati Brace Wrenches.....25&10%
Tafts' Vise Wrench.....55&10&3%

Wringers, Clothes—

List March 11, 1880, 2% cash.

Wrought Goods—

Staples, Hooks, &c., list Jan. 12, 1886, 40&15@55%

PAINTS, OILS AND COLORS.—Wholesale Prices.

Animal and Vegetable Oils.

Linseed, City, raw..per gal.	62	@	64
Linseed, City, boiled.....	64	@	66
Linseed, Western, raw.....	58	@	60
Lard, City, Extra Winter..	53	@	54
Lard, City, Prime.....	51	@	52
Lard, City, Extra No. 1.....	45	@	46
Lard, City, No. 1.....	42	@	43
Lard, Western, prime.....	51	@	52
Cotton-seed, Crude, prime,	..	@	28
Cotton-seed, Crude, off grades	22	@	26
Cotton-seed, Summer Yellow, prime	..	@	34
Cottonseed, Summer Yellow, off grades	30	@	33
Sperm, Crude	..	@	65
Sperm, Natural Spring	66	@	68
Sperm, Bleached Spring	71	@	73
Sperm, Natural Winter	77	@	76
Sperm, Bleached Winter	78	@	81
Whale, Crude	..	@	40
Whale, Natural Winter	49	@	..
Whale, Bleached Winter	51	@	..
Whale, Extra Bleached	54	@	55
Sea Elephant, Bleached Winter	60	@	62
Menhaden, Crude, Sound	19	@	22
Menhaden, Crude, Southern	..	@	..
Menha ten, Light Pressed	25	@	26
Menhaden, Bleached W'ter.	31	@	32
Menhaden, Extra Bleached	35	@	..
Tallow, City, prime	..	@	45
Tallow, Western, prime	..	@	..
Cocoanut, Ceylon	7	@	7¼
Cocoanut, Cochin	7¾	@	8
Cod, Domestic	31	@	32
Cod, Foreign	33	@	34
Red Elaine	31	@	34
Red Saponified..... ₩ ℔	..	@	4½
Bank.....per gal	24	@	..
Straits	25	@	..
Olive, Italian, bbls	81	@	83
Neatsfoot, prime	62½	@	75
Palm, prime, Lagos....₩ ℔	5¾	@	6¼

Mineral Oils.

Black, 29 gravity, 25 @ 30 cold test.....per gal	8½	@	9
Black, 29 gravity, 15 cold test	9	@	9½
Black, 29 gravity, summer.	7	@	8
Cylinder, light, filtered.....	15	@	20
Cylinder, dark, filtered	14	@	20
Cylinder, dard, st'm refined	10	@	18
Paraffine, 23½ @ 24 gravity.	12½	@	13
Paraffine, 25 gravity.....	11½	@	12
Paraffine, 28 gravity.....	10½	@	11
Paraffine, red, 21 @ 22 gr'ty	..	@	14½
Paraffine, red, 22½@23 gr'ty	12½	@	13

Paints and Colors.

Barytes, Prime White..... ₩ ton.	$21.00	@	22.50
Barytes, Amer. refined...	20.00	@	....
Barytes, Amer. No. 1....	18.00	@	....
Barytes, Amer. No. 2....	16.00	@	....
Barytes, Amer., off-color.	13.00	@	15.00
Blue, Celestial..... ₩ ℔	6	@	8
Blue, Chinese	50	@	55
Blue, Prussian.....	25	@	40
Blue, Ultramarine	10	@	30
Brown, Spanish	½	@	1
Brown, Vandyke, Amer..	3	@	3½
Brown, Vandyke, English	6	@	8
Black, American Drop....	8	@	10
Black, English Drop.....	12	@	14
Black, Frankfort, Drop...	5	@	18
Black, Lamp, common....	12	@	18
Black, Lamp, medium....	19	@	25
Black, Lamp, prime.....	27	@	33
Carmine, No. 40, in bulk.	3.10	@	..
Carmine, No. 40, in boxes or barrels	3.20	@	..
Carmine, No. 40, in ounce bottles	4.20	@	..
Chalk, in bulk.... ₩ ton.	2.00	@	2.40
Chalk, in bbls. ₩ 100 ℔.	30	@	35
China Clay, English..... ₩ ton.	13.50	@	18.00
China Clay, Southern...	10.00	@	12.00
Cobalt Oxide, prep'd....	2.90	@	....
Cobalt Oxide, black.. lots 100 ℔	2.60	@	....
Cobalt, Oxide, black..... less 100 ℔	2.65	@	....
Crocus Martus, Engl. ₩ ℔.	1½	@	2½
Crocus, American	1½	@	2½
Green, Paris, in bulk.....	14	@	14½
Green, Paris, 170 @ 175 ℔ kegs.....	14½	@	15
Green, Paris, small pack.	16	@	21
Green, Chrome, ordinary	8	@	13
Green, Chrome, pure....	22	@	25
Lead, Eng., B.B. white...	9	@	10
Lead, Amn. White, dry or in oil: Kegs, lots less than 1000 ℔..		@	7½
Kegs, lots 1000 ℔ to 5 tons.		@	6¾
Kegs, lots 5 tons to 12 tons..		@	6¾
Kegs, lots 12 tons and over..		@	6¼
Lead, White, in oil, 25 ℔ tin pails, add to keg price.		@	⅛
Lead, White, in oil, 12½ ℔ tin pails, add to keg price.....		@	1
Lead, White, in oil, 1 to 5 ℔ assorted tins, add to keg price.		@	2½
Lead, Red, bbls. and ½ bbls....	6¼	@	7
Lead, Red, kegs.....	6½	@	7¼
Litharge, kegs.....	6½	@	7¼
Litharge, bbls. and ½ bbls.....	6¼	@	7

TERMS, &C.—Lead and Litharge.—On lots of 1000 ℔ or over, 60 days' time or 2½ % discount for cash if paid within 15 days of date of invoice.

Ocher, Rochelle.....	1.35	@	1½
Ocher, French Washed.....	1½	@	2½
Ocher, German Washed...	1½	@	3
Ocher, American.....	½	@	1¼
Orange Mineral, English...	8½	@	9½
Orange Mineral, French....	9	@	9¾
Orange Mineral, German ..	8½	@	9½
Orange Mineral, American.	8	@	8½
Paris White, English Cliff-stone.....	90	@	1.10
Paris White, American.....	70	@	80
Red, Indian, English.....	5½	@	7
Red, Indian, American.....	2	@	6
Red, Turkey.....	9	@	14
Red, Tuscan	9	@	11
Red, Venetian, American.. ₩ 100 ℔.	1.00	@	1.35
Red, Venetian, Englisa....	1.25	@	1.75
Sienna, Italian, Burnt and Powd. ₩ ℔	5	@	6¼
Sienna, Ital., Burnt Lumps	1½	@	3½
Sienna, Ital., Raw, Powd..	5	@	6½
Sienna, Ital., Raw Lumps..	2	@	3½
Sienna, American, Raw....	1½	@	1¾
Sienna, American, Burnt and Powdered.....	1½	@	1¾
Talc, French.....	1½	@	1½
Talc, American.....	1	@	1¼
Terra Alba, Fr'ch. ₩ 100 ℔	72½	@	80
Terra Alba, English	80	@	85
Terra Alba, American No. 1	70	@	75
Terra Alba, American No. 2	38	@	40
Umber, Turkey, Bnt. and Powd., ... ₩ ℔	3½	@	4
Umber, Turkey Bnt. In	2¾	@	3
Umber, Turkey, Raw and Powdered.....	3½	@	
Umber, Turkey, R'w Lmps	2½	@	2¾
Umber, Turkey, Bnt. Amer.	1½	@	1¾
Umber, Turkey, R'w Amer.	1¼	@	1½
Yellow, Chrome.....	10	@	25
Vermilion, Americ. Lead..	11½	@	13
Vermilion, Quicks'er, bulk.	..	@	75
Vermilion, Quicks'er, bags.	..	@	76
Vermilion, Quicksilver, smaller pkgs.....	..	@	80
Vermilion, English Import	85	@	..
Vermilion, Imitation, Eng.	8	@	25
Vermilion, Trieste.....	87½	@	90
Vermilion, Chinese.....	90	@	95
Whiting, Common. ₩ 100 ℔	40	@	45
Whiting, Gilders'.....	50	@	55
Zinc, American, dry.... ₩ ℔	4	@	4¾
Zinc, French, Red Seal....	..	@	8½
Zinc, French, Green Seal..	..	@	8¾
Zinc, French, V. M. X.....	..	@	7
Zinc, Antwerp, Red Seal...	..	@	7½
Zinc, Antwerp, Green Seal	..	@	8½
Zinc, German, L. Z. O....	..	@	6¾
Zinc, V M. in Poppy Oil, G. Seal, lots of 1 ton and over.....	10¾	@	11¼
lots less than 1 ton	11	@	11½
Zinc, V. M. in Poppy Oil, Red Seal,.....	..	@	
lots of 1 ton and over....	10	@	10½
Lots of less than 1 ton....	10¼	@	10¾

DISCOUNTS.—French Zinc.—Discounts to buyers of 10- bbl. lots of one or assorted grades, 1 %; 25 bbls, 2 %, 50 bbls, 4 %. No discount allowed on less than bbl. lots.

Colors in Oil.

Blue, Chinese ..... ₩ ℔	35	@	40
Blue, Prussian.....	20	@	45
Blue, Ultramar.ine.....	12	@	18
Brown, Vandyke.....	7	@	12
Green, Chrome.....	8	@	13
Green, Paris.....	16	@	18½
Sienna, Raw.....	7	@	13
Sienna, Burnt.....	7	@	13
Umber Raw.....	7	@	10
Umber, Burnt	7	@	10

Glue.

Low Grade..... ₩ ℔	8	@	10
Cabinet.....	12	@	14
Medium White.....	13	@	15
Extra White.....	17	@	20
French.....	10	@	22½
English.....	10	@	15
Irish.....	12	@	15

CURRENT METAL PRICES.

SEPTEMBER 10, 1890.

The following quotations are for small lots. Wholesale prices, at which large lots only can be bought, are given elsewhere in our weekly market reports.

IRON AND STEEL.

Bar Iron from Store.

Common Iron :	
¾ to 2 in. round and square.. 1 to 6 in. x ⅝ to 1 in.....	₩ lb 2.00 @ 2.10¢
Refined Iron :	
¾ to 2 in. round and square..	
1 to 4 in. x ⅝ to 1½ in.....	₩ lb 2.10 @ 2.30¢
4½ to 6 in. x ⅝ to 1 in.....	
1 to 6 in. x ¼ and 5-16	₩ lb 2.30 @ 2.50¢
Rods—⅜ and 11-16 round and sq..	₩ lb 2.20 @ 2.40¢
Bands—1 to 6 x 3-16 to No. 12.....	₩ lb 2.40 @ 2.60¢
"Burden Best" Iron, base price..	₩ lb 2.90 @ ....¢
Burden's "H. B. & S." Iron, base price.....	₩ lb 2 70 @ ....¢
"Ulster".....	₩ lb 2.90 @ ....¢
Norway Bars	3.90 @ ....¢
Norway Shapes	4.90 @ ....¢

Merchant Steel from Store.

	Per pound.
Open-Hearth and Bessemer Machinery, Toe Calk, Tire and Sleigh Shoe, base price in small lots.....	2¾¢
Best Cast Steel, base price in small lots	8 ¢
Best Cast Steel Machinery, base price in small lots.....	5¢

Sheet Iron from Store.

	Common American.	R. G. Cleaned.
10 to 16.....₩ lb	3.00 @ 3.00¢	3.50 @ .....¢
17 to 20.....₩ lb	3.25 @ 3.25¢	3.50 @ 3.75 ¢
21 to 24.....₩ lb	3.35 @ 3.35¢	3.75 @ .....¢
25 and 26...₩ lb	3 45 @	3.75 @ .....¢
27..... ...₩ lb	3.55 @ 3.62½¢	4.00 @ .....¢
28.....₩ lb	3.75 @ .... ..¢	4.25 @ .....¢
	B. B.	2d qual.
Galv'd, 14 to 20, ₩ lb,	5.00 @ ...	4.75½ @ .....¢
Galv'd, 21 to 24, ₩ lb,	5.37½ @ ...	5.12½ @ .....¢
Galv'd, 25 to 26, ₩ lb,	5.75 @ ...	5.50 @ .....¢
Galv'd, 27..... ₩ lb,	6.12½ @ ...	5.85½ @ .....¢
Galv'd, 28..... ₩ lb,	6.50 @ ...	6.23 @ .....¢
Patent Planished.....	₩ lb A 10¢	B, 9¢
Russia.....	₩ lb 9½¢	@ 10¢
American Cold Rolled B. B.....	₩ lb 5¢	@ 7¢
Craig Polished Sheet Steel.....	₩ lb,	8½¢

English Steel from Store.

Best Cast	₩ lb 15 ¢
Extra Cast	₩ lb 16½ @ 17 ¢
Swaged, Cast.....	₩ lb 16 ¢
Best Double Shear.....	₩ lb 15 ¢
Blister, 1st quality.....	₩ lb 12 ¢
German Steel, Best.....	₩ lb 10 ¢
2d quality.	₩ lb 9 ¢
3d quality	₩ lb 8 ¢
Sheet Cast Steel, 1st quality.....	₩ lb 15 ¢
2d quality.....	₩ lb 14 ¢
3d quality.....	₩ lb 12½¢
R. Mushet's "Special"	₩ lb 45 ¢
" " "Titanic".....	₩ lb 20 ¢

METALS.

Tin.

	Per lb
Banca, Pigs.....	23 ¢
Straits, Pigs.....	22¾¢
Straits in Bars	25 ¢

Tin Plates.

	Charcoal Plates.—Bright.	Per box.
Melyn Grade.....	IC, 10 x 14..	@ $6.25
" "	... .IC, 12 x 12..	@ 6.50
" "	..... IC, 14 x 20..	@ 6.25
" "	.....IC, 20 x 28..	@ 12.75
" "	....IX, 10 x 14.. ...	@ 7.75
" "	....IX, 12 x 12..	@ 8.00
" "	....IX, 14 x 20..	@ 7.75
" "	.....IX, 20 x 28..	@ 15.50
" "	.....DC, 12½ x 17.. ...	@ 5.75
" "	.....DX, 12½ x 17..	@ 7.25
Calland Grade.....	IC, 10 x 14,..	@ 6.25
" "	.....IC, 12 x 12..	@ 6.50
" "	.....IC, 14 x 20.. . .	@ 6.15
" "	.....IX, 10 x 14.. .. .	@ 7.40
" "	. .....IX, 12 x 12..	@ 7.65
" "	.....IX 14 x 20.	@ 7.40
Allaway Grade.....	IC, 10 x 14..	@ 5.35
" "	.. ...IC, 12 x 12..	@ 5.50
" "	.....IC, 14 x 20..	@ 5.35
" "	.....IC, 20 x 28..	@ 10.75
" "	.....IX. 10 x 14..	@ 6.50
" "	. ....IX, 12 x 12..	@ 6.65
" "	..... IX, 14 x 20..	@ 6.50
" "	.....IX, 20 x 28..	@ 13.25
" "	...DC, 12½ x 17.. ...	@ 5.00
" "	. .DX, 12½ x 17.. 6.00	@ 6.00

Coke Plates.—Bright.

Steel Coke.—IC, 10 x 14, 14 x 20,..		@ $5.12½
	10 x 20..	@ 7.25
	20 x 28.. ...	@ 10.25
	IX, 10 x 14, 14 x 20..	@ 6.00
BV Grade.—IC, 10 x 14, 14 x 20.. ...		@ 4.87½

Charcoal Plates.—Terne.

Dean Grade.—IC, 14 x 20..		@ $5.00
	20 x 28.	@ 10.00
	IX, 14 x 20.....	@ 5.80
	20 x 28.....	@ 11.60
Abecarne Grade.—IC, 14 x 20...		@ 4.85
	20 x 28...	@ 9.37
	IX, 14 x 20.... ...	@ 5.80
	20 x 28..	@ 11.60

Tin Boiler Plates.

IXX, 14 x 26.....112 sheets.....	$13.00	@ $13.00
IXX, 14 x 28..... 112 sheets....		@ 13.25
IXX, 14 x 31... ....112 sheets		@ 14.75

Copper.

DUTY: Pig, Bar and Ingot, 4¢; Old Copper, 3¢ ₩ lb. Manufactured (including all articles of which Copper is a component of chief value), 45 % ad valorem

Ingot.

Lake	@ 17½¢
Baltimore Grade...	@ 15 ¢

Sheet and Bolt.

Prices adopted by the Association of Copper Manufacturers of the United States, June 27, 1890, being quotations for all sized lots.

Not wider than	Not longer than	And longer than	Weights per square foot and prices per pound. Over 64 oz.	32 to 64 oz.	16 to 32 oz.	14 to 16 oz.	12 to 14 oz.	10 to 12 oz.	8 to 10 oz.	Less than 8 oz.
30	72		25	25	25	26	27	28	31	33
30		72	25	25	25	26	28	30	34	....
36	96		25	25	25	27	29	33	36	....
36		96	25	25	26	28	30	34	38	....
48	96		25	25	27	29	31	35	....	....
48		96	25	25	28	30	32	36	....	....
60	96		25	25	30	32	37	....	....	....
60		96	25	26	31	....	....	....	....	....
84	96		26	27	....	....	....	....	....	....
84		96	27	28	....	....	....	....	....	....
Over 84 in. wide			28	30	....	....	....	....	....	....

All Bath Tub Sheets.....	16 oz.	14 oz.	12 oz.	10 oz.
Per pound.....	$0.27	0.29	0 31	0.35

Bolt Copper, ⅛ inch diameter and over, per pound..... 25¢

Circles, 60 inches in diameter and less, 3 cents per pound advance over lowest prices of Sheet Copper of the same thickness.

Circles, over 60 inches diameter, up to 96 inches diameter, inclusive, 5 cents per pound advance over lowest prices of Sheet Copper of the same thickness.

Circles, over 96 inches diameter, 6 cents per pound advance over lowest prices of Sheet Copper of the same thickness.

Segment and Pattern Sheets, 3 cents per pound advance over price of sheets required to cut them from.

Cold or Hard Rolled Copper, 14 ounces per square foot and heavier, 1 cent per pound over the foregoing prices.

Cold or Hard Rolled Copper, lighter than 14 ounces per square foot, 2 cents per pound over the foregoing prices.

Copper Bottoms, Pits and Flats.

	Per pound.
14 ounce to square foot and heavier.....	29¢
12 ounce and up to 14 ounce to square foot.....	30¢
10 ounce and up to 12 ounce.....	32¢

Circles less than 8 inches diameter 5 cents per pound additional.

Circles over 13 inches diameter are not classed as Copper Bottoms.

Tinning.

Tinning sheets on one side, 10, 12 and 14 x 48 each.....	8¢
Tinning sheets on one side, 30 x 60 each.....	30¢
For tinning boiler sizes, 9 in. (sheets 14 in. x 60 in.), each.	15¢
For tinning boiler sizes, 8 in. (sheets 14 in. x 56 in.), each	12¢
For tinning boiler sizes, 7 in. (sheets 14 in. x 52 in.) each.....	12¢
Tinning sheets on one side, other sizes, per square foot.....	2½¢
For tinning both sides double the above prices.	

Planished Brass and Copper.

14 x 48.

14 and 16 oz. and heavier..31¢. By the case...30¢ ₩ lb
12 oz. and lighter.....33¢. By the case...32¢ ₩ lb

24 x 48 and 30 x 60.

14 and 16 oz. and heavier..44¢. 12 oz.....37¢ ₩ lb

Seamless Brass and Copper Tubes.

O. G.	N. G.	⅝	½	⅜	¾	⅛	1	1⅛
8-14	6-12	39	35	32	31	30	29	26
15	13	40	35	33	32	31	30	27
16	14	41	36	34	33	32	31	27
17	15	42	37	35	32	33	32	28
18	16	44	38	36	34	33	32	29
19	17	45	39	37	36	35	34	31
20	18-19	46	41	39	38	37	36	33
21	20	48	43	41	40	39	38	36
22	21	50	44	42	41	40	39	38
23	22	52	46	44	43	42	41	41
24	23	55	48	46	45	43	42	43
25	24	58	51	48	47	46	45	47

Copper Bronze and Gilding Tube, 3¢ ₩ lb additional.

Brazed Brass Tubing. (To No. 20, inclusive.

Above 5-16 inch to 3 inch, inclusive	35¢
Plain, above 3 inch.....	45¢
Plain, 5-16 inch.....	45¢
Plain, ¼ inch.....	60¢
Plain, 3-16 inch.....	$1.00
Plain, ⅛ inch.....	1.50
Fancy Tubing, Brass, to No. 20, inclusive.....	43¢ ₩ lb
Bronze Tubing, 3¢ ₩ lb more than Brass.	
Discount from list.....	25 @ ... %

Roll and Sheet Brass.

Discount from list..... 30 %

High Brass Rods.

Over 1 inch diameter.....	29¢
¼ inch to 1 inch diameter, both inclusive.....	26¢
No. 8 and less than ¼ inch diameter.....	28¢
Smaller than No. 8.....	32¢

Hexagon, Octagon and Square, 2¢ ₩ lb advance over Round Rods.

Spelter.

Duty: Pig, Bars and Plates, $1.50 ₩ 100 lb.

Western Spelter	6½¢
"Bertha"	8¢

Zinc.

Duty; Sheet, 2½¢ ₩ lb.

600 lb casks.....	6½¢
Per lb	7½¢

Lead.

Duty: Pig, $2 ₩ 100 lb. Old Lead, 2¢ ₩ lb. Pipe and Sheets, 3¢ ₩ lb.

American	4½¢
Bar.....	5 ¢
Pipe, subject to trade discount....	7 ¢
Tin-Lined Pipe, subject to trade discount....	15¢
Block Tin Pipes, subject to trade discount.....	40¢
Sheet, subject to trade discount.....	7½¢

Solder.

½ @ ½ (Guaranteed)...	15 ¢
No. 1.....	12 ¢
Extra Wiping.....	11½¢ @ 12 ¢

The prices of the many other qualities of Solder in the market indicated by private brands vary according to composition.

Antimony.

Cookson.....	₩ lb 24 ¢
Hallett's.	" 21½¢

ALUMINUM.

Prices in Ingots.

$2.00 ₩ lb in lots of 1000 lb and over.
$2.25 ₩ lb in lots of 500 lb and over.
$2.50 ₩ lb in lots of 100 lb and over.

Prices Per Pound on Rolled Sheets.

(Brown & Sharpe, Standard Gauge.)

Wider than.	2 in.	10 in.	14 in.	18 in.	22 in.
And including.....	10 in.	14 in.	18 in.	22 in.	24 in.
Up to No. 20 inclusive...	$2.50	$2.60	$2.80	$3.00	$3.20
Nos. 21, 22, 23 and 24....	2.60	2.70	2.90	3 10	3.30
Nos. 25 and 26.....	2.70	2.80	3.00	3.20	3.40
Nos. 27 and 28.....	2.80	2.90	3.10	3.30	3.50

Sheets, thinner than No. 28 gauge and wider than 24 inches, special prices not less than $5 per pound.
Add 35 cents per pound for sheets cut to particular widths and lengths.
Sheets rolled to .001 in. and under, 50 cents per ounce.
Leaf in books, 20 cents per book; $2 per pack of 10 books, sheets 5 x 5 inches.

Aluminum Tubing.

From $4 per pound upward, according to size and thickness of walls.

Aluminum Castings.

From 50 cents upwards per pound extra over the cost of the metal in ingots, according to the number wanted, weight, the difficulty of casting, cost of patterns, &c.

Aluminum Wire in Coils.

(Brown & Sharpe, Standard Gauge.)

	Per lb
All numbers up to No. 14 (.064 in.) inclusive.....	$3.00
Nos. 15 (.05706 in.) to 22 (.02534 in.) inclusive....	3.25
Nos. 23 (.02571 in.) and 24 (.0201 in.) inclusive...	3.50
Nos. 25 (.0179 in.) and 26 (.01594 in.) inclusive....	3.75
Nos. 27 (.014196 in.) and 28 (.012641 in.) inclusive	4.00
Nos. 29 (.011257 in.) and 30 (.010023 in.) inclusive	4.25
No. 31 (.008928 in.).....	4.50
No. 32 (.00795 in.).....	4.75
No. 33 (.00708 in.).....	5.00
No. 34 (.00630 in.).....	5.25
No. 35 (.00561 in.).....	5.75
No. 36 (.00500 in.).....	6.25
No. 37 (.00445 in.).....	7.00
No. 38 (.003965 in.).....	8.50
No. 39 (.003531 in.).....	12.00
No. 40 (.003144 in.).....	16.00

Spooling, on 1-pound spools, 15 cents per pound extra.
Spooling, on 10-pound spools, 5 cents per pound extra.